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ABSTRACT

The purposes of the first two parts of this literature review are to clarify the concept of active learning and discuss the use and value of active learning models. In Part I, the perspectives of five historical proponents of active learning, Rousseau, Pestalozzi, Dewey, Kilpatrick, and Piaget, are discussed. The views of four contemporary proponents, Bruner, Wigginton, Freire, and Sharan, are also considered. The ideas of these proponents show four common themes: (1) rejection of traditional teaching methods; (2) belief in the cognitive learning paradigm; (3) faith in the ability of students; and (4) belief in the importance of the relationship of school to society. In Part II, four major active learning movements are examined. These are the historical movements of progressive education and activity, and the contemporary movements of discovery/inquiry and cooperative learning. Part III analyzes the perspectives and movements discussed in Parts I and II. Topics include: (1) a definition of active learning; (2) the cognitive learning paradigm; (3) the roles of teachers and students; (4) the relationship between education and society; and (5) research on active learning. In Part IV, conclusions about the history and future of active learning are drawn. A bibliography containing more than 110 items is included. (Author/BC)

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# Active Learning:

## Historical and Contemporary Perspectives

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## Abstract

In this review of the literature, I discuss the concept of active learning in relation to nine Proponents: Rousseau, Pestalozzi, Dewey, Kilpatrick, Piaget, Bruner, Wigginton, Freire and Sharan. The literature shows four common themes among these Proponents: rejection of traditional teaching methods; belief in the cognitive learning paradigm; faith in the ability of the student; and the importance of the relationship of school to society. I also discuss four major active learning Movements of the 20th Century: the Progressive Education, Activity, Discovery/Inquiry, and Cooperative Learning Movements. I describe the history and major premises of these Movements and discuss related application and research.

Active learning means different things to different people and/or different people emphasize aspects of the concept in a different order. There is agreement, however, that students learn best by doing their own learning in an active way, mentally and/or physically; that by discovering for themselves, students construct their own knowledge structures; and that learning actively leads to an ability to think critically and to solve problems.

The teacher's role in an active learning paradigm is not clear. Proponents agree that there should be a reciprocal relationship between student and teacher and that the teacher should be a guide rather than an information dispenser. However, there are no definitive guidelines for accomplishing this. All Proponents stress the need for discipline, a covert or overt framework, and guidance and evaluation.

John Dewey appears to have been and to be the driving force in the active learning models. Every other Proponent, except for Rousseau and Pestalozzi who lived before Dewey, based or base at least part of their work on his philosophy and gave or give him credit for the underpinnings of their own theories and philosophies. His theories and philosophies are also the underpinnings for the four Movements.

There is very little new about active learning except for the way modern research can assess outcomes. The names and labels have changed but the basic concept has stayed the same throughout the 20th Century.

Futurists (Benjamin, 1989; Toffler, 1970, 1974, 1980) argue that because society and knowledge are changing so rapidly, the traditional educational system in which the teacher dispenses packaged knowledge to the students is, to paraphrase McLuhan, looking through a rear view mirror; it is inadequate and inappropriate for the present and future needs of students. Willoughby (in Parker, 1983) claims the system produces students who are slightly better at skills that were "of questionable value in the nineteenth Century and will be of little value in the twenty-first Century" (p. 2). The futurists advocate an active learning educational program in which students participate not only in determining their own learning tasks, but in discovering, constructing and/or creating their own learning.

Active learning is not a new concept. It is, however, a concept that is, more often than not, misunderstood, overused and abused. There is neither a comprehensive body of research nor a consolidated discussion on active learning in the literature. A major problem is definition. Eliot Wigginton (1989) of Foxfire fame describes the concept of active learning and related issues as a minefield. That minefield is littered with the debris of (among others) discovery, experiential, student-centered and cooperative learning; the project method; democratic education; learning by doing; and progressive education.

What is active learning? What are the origins, underpinnings, applications, purposes, philosophies, theories, and successes and failures of the various forms of active learning? Can active learning make a

difference?

Together, the purpose of Part I and II is to provide the base from which to: a) answer these questions; b) clarify and define the concept of active learning; and c) raise questions about, and discuss implications for, the use and value (or lack of) of an active learning model. In Part I, Historical and Contemporary Perspectives, I discuss the concept of active learning as associated with the following Proponents - Rousseau, Pestalozzi, Dewey, Kilpatrick (historical); Piaget (historical and contemporary); and Bruner, Freire, Wigginton and Sharan (contemporary). In Part II, Related Educational Movements, I examine four major Movements which fit under the active learning umbrella: the Progressive Education and Activity Movements (historical); and the Discovery/Inquiry and Cooperative Learning Movements (contemporary). The discussion includes related applications and research.

Part III, Analysis, is just that - an analysis of the issues, forms, and tenets of active learning as defined in Parts I and II; and in Part IV, Conclusions, I discuss questions about the past and questions and implications for the present and future.

Besides providing a base for clarification and discussion of the active learning concept, I hope this paper will provide a foundation for my dissertation work on the National History Day Program, which I consider a model of active learning, and will help to fill a gap in the literature.

Note: I have capitalized Proponents and Movements throughout the paper when referring to the Proponents and Movements mentioned above. Also, I use the masculine pronouns to refer to either male or female students.

Part I

## Historical and Contemporary Perspectives

'Historical perspectives' refers to the time period from the 18th Century up to the end of World War II. 'Contemporary perspectives' refers to the time from post World War II to the present. I have divided the time frame in this way partly because I found a shift in emphasis within the foundations of the active learning concept, partly because the end of World War II marked a change in the relationship between the Federal Government and school policies and programs, and partly because the contemporary timeline, defined in this way, fits with my own timeline of schooling as a student and educator.

In the literature I found four themes that were common to the Proponents. These themes are: a) rejection of the traditional teaching model; b) an emphasis on the cognitive learning paradigm; c) emphasis on the relationship between school and society; and d) belief in the worth and ability of the student. Because I discuss the same themes for each Proponent, Part I is repetitious and the reader may prefer to use and think of this section as a resource or misplaced appendix rather than as a main part of the paper. I have kept the sections on each Proponent separate, because I want Part I as a reference for myself and want to be able to pick out any individual Proponent and his themes quickly.

In addition, the more involved I got in the literature, the more I realized how important historical grounding is to me. Therefore, I have included a description of historical context with the discussion of each Proponent. These descriptions may or may not be of interest to the reader,

but knowing the socio/historical backdrop of the Proponents has enabled me to make sense of their theories and philosophies.

## Historical Perspectives

### Jean Jacques Rousseau (1712-1778)

Historical Context. The effects of Renaissance paintings depicting natural man in a natural environment, of the questioning of blind faith spawned by the Reformation and of scientific discoveries of the 16th and 17th Centuries led to the historical era known as the Enlightenment. Historians consider Locke's Second Treatise of Civil Government, published in 1690, to be the start of that Enlightenment. By the early 1700's, Locke's idea that people had made an unwritten social contract in forming a government had spread. His belief was that while people had given up some rights in making the contract, they had certain natural rights such as the right to live, enjoy liberty and own property and that they had the right to overthrow a leader who violated these natural laws. The belief in such natural laws characterized the Enlightenment and influenced Rousseau's philosophy and writings (Lebvre, 1962; Lebvre, 1977).

At this same time, the political, social and economic turmoil of the Reformation had led also to the establishment of several absolute monarchies throughout Europe. France was one of these monarchies. Louis XIV was the French Monarch when Rousseau was born. He had built the enormous palace at Versailles and surrounded himself with writers, sculptors, painters, musicians and architects. These people gave France its Golden Age. When Rousseau was born in Geneva, in 1712, Switzerland, however, was still a loose

collection of city-states experiencing religious and anti-aristocratic conflicts (Lebvre, 1962; Lebvre, 1977). France, Switzerland, and the Enlightenment were the backdrops for Rousseau's life.

Rousseau's mother had died shortly after his birth and his father left him when he (Rousseau) was ten years old, with an uncle. At age sixteen, Rousseau began his wanderings and eventually ended up in France trying, and often failing, to make a living at various odd jobs, including copying music, writing operas, and for about two years, tutoring a young boy. At age 37, Rousseau got involved in a literary society of political philosophers who had come to join in France's Golden Age. He entered a writing contest at the Academy of Dijon, at the urging of Diderot, author of the Encyclopedia, who suggested to Rousseau that a negative essay would receive more attention than a positive one. Rousseau won first prize with his essay which denounced civilized life (Barnard, 1858).

In 1762, Rousseau wrote the Social Contract and Émile, his treatises on government and education. The Archbishop and Parliament of Paris condemned his book, Émile, because of its attack on the teaching of the Christian doctrine, and authorities in Paris and Geneva burned his works. To avoid being imprisoned, Rousseau wandered from Switzerland to France to England and eventually back to France in 1770, promising he would not write about politics or religion. He died of a stroke in 1778 (Barnard, 1858).

Worth and ability of the student. Up to this time, society did not regard children in a positive way. It was common for parents to belittle their children, treat them as small adults and even to give them up to orphanages.

The ideas of the Enlightenment, however, stressed that children were human in their own right and that they were not simply economic assets or liabilities. Rousseau expressed these new ideas in Émile. He believed that children had the right to be happy, that they deserved respect and that they were capable of self-direction and self-development. He rejected the doctrine of original sin and argued that children were born good with innate qualities, potential skills and the capacity to learn. Rousseau also developed the idea that childhood had natural stages of continuous growth which education should address (Rousseau, 1762/1957).

Rejection of traditional education. At the time of Rousseau's writings, what education existed consisted of reading and memorizing the great works of Greece and Rome - a classical education (Sahakian & Sahakian, 1974). Rousseau (1762/1957) believed that this education caused destructive tendencies in children by stifling their natural desire for activity and that it made men deceitful, selfish and pretentious. He argued that this education was boring, beyond the child's comprehension and that it taught the students "to believe much and know little" (p. 90). He asserted that this education which forced the student to sit motionless and silent made students hate the subject and education and made them passive, feeble and stupid.

What education should be. Rousseau's (1762/1957) philosophy was that the child should develop and learn naturally. His emphasis was always on learning by doing. He recommended that from birth to twelve years, there should be a negative education which meant that the child would learn

through his senses, experience and activity. There would be reading and writing only if the student were interested in that. From age twelve to fifteen, there should be academic subjects such as geography and science but the students would still learn by themselves; they would construct their own experiments and draw their own maps.

From fifteen to adulthood, the concern would be on academic studies, politics and social relationships. This stage would emphasize moral development, reasoning (forming, comparing and judging ideas) communication skills and the development of self-confidence, but again would always involve doing rather than listening - "Let him learn nothing from books he can learn from experience" (Rousseau, 1762/1957, p. 214). This stage, Rousseau predicted, would prepare the student to deal with the evils of society; the student would be able to think for himself, use self-control and be a model for others (Rousseau, 1762/1957).

According to Rousseau (1762/1957), the teacher's job was to supply the student with problems which would arouse curiosity and stimulate activity and therefore growth. The teacher should let the student arrive at his own solutions and should encourage self-directed activities. However, this did not mean that the student should or could do whatever he wanted. That, Rousseau said, would create a monster.

Rousseau (1762/1957) argued that the teacher should arrange the problems and environment so that the student would learn the proper things by himself without knowing that the teacher had manipulated the environment. The teacher would have near total control of the student's experience and had to be alert

to particular talents and competencies to provide suitable conditions for natural development. Rousseau did not advocate permissiveness as is commonly thought. He had clear ideas about discipline which he described not as physical but as deprivation punishment in which the teacher would take away some form of enjoyment when the child misbehaved.

Cognitive learning paradigm. According to Rousseau (1762/1957), the senses were the bases of intellectual development. Through his senses, the child discovered, compared and judged what he experienced, and what resulted was a sort of compound of impressions called ideas. Reasoning, Rousseau asserted, was the act of sorting, associating, connecting, and discriminating among and between these simple ideas to form complex ideas and relationships. It was the child's interaction with the environment, his experiences, which corrected and modified these ideas.

Education and society. For Rousseau (1762/1957), education was a part of his revolutionary plan to free man from the aristocratic and authoritarian society of his time. He did not advocate going back to the time of the cave man, but he did believe that the society of his time was unnatural and evil. He wanted to return to a more natural state, one in which freedom, equality, cooperation and social harmony existed. It was society, he argued, which had corrupted man.

The objective of education, then, was to undo this harm inflicted by modern society by producing individuals self-reliant enough to avoid corruption and to play a productive role in society. With a moral conscience, Rousseau (176/1957) believed, man could find true freedom and would be

compelled to do what was right for the public good.

Contribution to the concept of active learning. Émile is often considered the start of the 'new education' of which progressive education is a direct descendant (Sahakian & Sahakian, 1974). From Rousseau, we have the concepts of learning by experience, learning by doing, the principles of readiness and learning stages and attention to the child's interests as a guide to educational practice. Rousseau also gives us the notions that a student develops and modifies ideas in relation to his environment and that a student who does his own learning is capable of being a more productive citizen than one who does not.

Results. According to Monvel (in intro. to Rousseau, 1762/1957), publication of Émile caused a sensation; it became a best seller overnight. The French Legislature used Émile as a framework for educational changes during the French Revolution. Monvel reports that 'it has been the inspirational source for every great educational reformer since the eighteenth Century. . . . and . . . there is scarcely an educational theory or method which cannot in some way be traced to . . . Émile" (p. viii-ix).

## Johann Heinrich Pestalozzi

Historical context. Pestalozzi was Rousseau's disciple. He read Emile in 1764, at the age of eighteen and began to spread Rousseau's ideas by bringing them to the common people. Like Rousseau, Pestalozzi was a citizen of the Swiss Republic. He had been involved in a failed agricultural, educational experiment (in which he thought he could teach

children through farming activities while at the same time revive a simpler way of life) and had already written his book, Leonard and Gertrude, a novel in which he expressed his educational philosophy, when discontent escalated in France (Gutek, 1968).

The economic situation in France deteriorated to the point that Louis XVI had to call the Estates General, the French Parliament which had not met for over 200 years, in order to raise taxes. The Third Estate, the part of the Parliament which consisted of the Bourgoisie, peasants and business people, met separately in a dispute over the voting procedures, proclaimed itself the National Assembly and the French Revolution began. It was 1789. Pestalozzi was forty-three years old. Rousseau, considered the inspiration for the Revolution, had died the year before. (Gutek, 1968).

It was in this background of revolution and turmoil that Pestalozzi lived and worked. Throughout his life, he taught, wrote and carried out a succession of educational experiments, including many with orphans of the Revolutionary and Napoleonic Wars. Either because financial problems closed his schools or because he did not accomplish his desired results, Pestalozzi considered most of his experiments as failures. Each failure, however, led him to reformulate his experiments and beliefs and to try again (Gutek, 1968; Pestalozzi, 1801/1898).

Worth and ability of the student. Like Rousseau, Pestalozzi (1801/1898) believed a child was innately good and had within him the moral, intellectual and physical powers which he could develop through his own activity and experience. He argued that natural development was continuous and gradual

and that all children were capable of developing into morally respectable, economically self-sufficient and socially useful adults.

Rejection of traditional education. As Rousseau had done, Pestalozzi (1801/1898) attacked the method and content of the classical education. He claimed that because the education was abstract and artificial, it made students anxious and confused. He added that students memorized information but did not understand it. He posited that not only did this education, that was "blown in their ears" (p. 244), make the student passive, but the educational system had caused society's ills:

> Europe, with its system of popular instruction was bound sooner or later to fall into error or rather into the disorder which is threatening to ruin society. (p. 222)

In addition, Pestalozzi (1801/1898) blamed the printing press and the consequent availability of textbooks for the economic, social and educational situations:

> This disproportion, ruinous for the human mind, between the advantages of the upper, and the misery of the lower classes, or rather the beginning point from which this striking disproportion in the culture of our country dates, is the invention of the art of printing. (p. 222)

The only way to get rid of the civil, moral and economic ills of society, Pestalozzi argued, was to get rid of the classical instruction.

What education should be. Pestalozzi (1801/1898) wanted to develop an educational system that would permit the student's natural goodness to develop in the midst of the evil social environment. He constantly stressed the importance of the student's activity:

> Give no words when action or deed is possible; what he can do for himself let him do. Let him be always occupied, ever active and let the time when you do not worry him be by far the greatest part of his childhood. . . . Nature teaches better than men. (in Gutek, 1968, p. 28)

By his own admission, Pestalozzi (1801/1898) had been a poor student and not only as a student but also as an adult couldn't write, spell, do math, nor read well. This lack, and the fact that he often had as many as 80 students at one time, led him to devise and experiment with different kinds of teaching methods; consequently, there were differences between Rousseau's and Pestalozzi's philosophies and techniques. Pestalozzi did have classes in academic subjects and had group recitations which he rationalized as being important because they were recitations of a student's solution to a problem, not what a teacher had told them to recite. His basic curriculum included three main parts - form (size and measurement), language, and numbers, and his underlying theory was that sense impression was the foundation of all knowledge.

The teacher's job, he believed, was to provide the right environment and to guide the student's use of, and experiences with, materials and objects while always allowing the student to learn and discover by himself. In addition, having lost his father when he was five years old, Pestalozzi (1801/1898) believed not only was it his responsibility to be the father figure for his orphan students, but that all educational environments should model a nurturing home atmosphere.

Cognitive learning paradigm. Locke's theory that man's ideas came from sense experiences influenced Pestalozzi. He, Pestalozzi (1801/1898), believed that the student's mind received impressions through observation and experience and that these impressions produced ideas and an organized mental structure which enabled the student to compare, examine, separate, sort, and conclude. He used a term, "anschauung" (p. 7), which referred to this operational process that he claimed was the source of all human

cognition. This process by which man formed concepts and ideas was the basis for Pestalozzi's learning theory.

Education and society. Pestalozzi was a social reformer who believed that man could regenerate himself through education and once regenerated could play an effective role in the redemption of the community. He blamed the class structure and the evils of society, including Robespierre's behavior during the Reign of Terror, on the classical education. Citizens of a republic, he argued, needed a better education in order to perform the functions of self-government. Through the right education, man could develop his character, be able to judge for himself and keep himself from being a puppet or blindly following anyone's lead (DeGuimps, 1909; Pestalozzi, 1801/1898).

Contribution to the concept of active learning. From Pestalozzi we get the concepts of learning by doing, the student's own discovery, the idea of a student being active physically and mentally, the importance of the student's experiences with objects, the concept of "anschauung" - the process involving formation of knowledge structures - and the notion that education is capable of producing men who can regenerate society.

Results. Did Pestalozzi's methods work? One orphan student, who became Pestalozzi's student at age ten and later became a teacher in one of Pestalozzi's schools, said of his education:

> So far as ordinary school knowledge was concerned, neither I nor the other boys learned anything, but as Pestalozzi did nothing but make us repeat these exercises one after another, without asking us any questions, this process, excellent as it was, never did us very much good. (in DeGuimps, 1909, p. 189)

On the other hand, after Pestalozzi had taught in the town of Burgdorf in Berne for eight months and the students had had their annual examinations, the School Commission reported:

> So far as we are able to judge, all that you yourself hoped from your method of teaching has been realized. You have shown what powers already exist in even the youngest child, in what way these powers are to be developed, and how each talent must be sought out and exercised in such a way as to bring it to maturity. The astonishing progress made by all your young pupils, in spite of their many differences in character and disposition, clearly shows that every child is good for something, when the master knows how to find out his talents, and cultivate them in a truly psychological manner. Your teaching has brought to light the foundations on which all instruction must be based if it is ever to be of any real use; it also shows that from the tenderest age, and in a very short time, a child's mind can attain a wonderful breadth of development which must make its influence felt, not only during his few years of study, but throughout his whole life. Whereas by the difficult method hitherto in vogue, children from five to eight years old learnt nothing but letters, spelling, and reading, your pupils have not only succeeded in these things to a degree which is altogether unprecedented, but the cleverest among them are also distinguished for their good origin, and their talent for drawing and arithmetic. In all of them you have aroused and cultivated such a taste for history, natural history, geography, measuring etc. that their future masters will find their task incredibly lightened if they do but know how to turn this preparation to advantage. (In DeGuimps, 1909, p. 177)

Not only did the King of Prussia adopt the Pestalozzi methods, but by the 1800's, Pestalozzi's theories and philosophies had been carried to the United States although often in disconnected and altered forms (Gutek, 1968). The Oswego, New York school system was one of the first American systems to adopt Pestalozzi's methods, but because the teachers changed the techniques so much, their instruction more often than not looked more like the traditional methods they were trying to replace (Saettler, 1968).

However, Pestalozzi's philosophies are found in the work of the American progressive educators of the late 19th and early 20th Centuries. The Progressive Education Association, organized in 1918, advocated child freedom based on natural development; direct experience with the world and

activities; use of the senses in training students in observation and judgment; and cooperation between home and school. These were the same reforms Pestalozzi had urged in the 19th Century (Connell, 1980).

John Dewey (1859-1952)

Historical context. John Dewey had taught for three years in secondary schools and then at several universities before he went to the University of Chicago where he established the Laboratory School (Campbell, 1971). That was 1896, and the United States was in the middle of the Industrial Revolution. In the last two decades of the 19th Century, urbanization, industrialization and immigration had transformed American society. The concentration of population had shifted from rural to urban areas; large factories and business organizations began to dominate the economic system; and there was a flood of immigrants from Southern and Eastern Europe (Spring, 1986).

Dewey worked amidst these changes and then among the societal changes of World War I, the frivolous Twenties, the Great Depression, and World War II. During that long span of time, he saw the schools, especially at the secondary level, struggling to adapt to a growing and changing population. (Spring, 1986).

Worth and ability of the student. Dewey assumed that every human being had worth and that it was that belief that gave democracy its meaning. He believed in the natural powers of the student's attention and energy and argued that those attributes should be the basis of the students' learning (Dewey, 1938/1972).

Rejection of traditional education. When dewey opened his laboratory school in 1896, the American education was mainly one of the humanist, classical tradition similar to the classical education in Europe at the time of Pestalozzi and similar to the one which Dewey himself had experienced as boring, routine and unimaginative (Campbell, 1971). Dewey objected to the content and method of this classical education in which, he said, there was no active participation by the students and no reflective thinking. Instead, students memorized and recited unrelated chunks of material (Dewey, 1931/1970). Having teachers deliver bodies of information, he argued, made students docile, receptive and obedient and prevented them from learning how to solve problems (Dewey, 1938/1972).

What education should be. Darwin's theory on the changing nature of society, the scientific method, and his (Dewey's) own belief in a a democratic way of life all influenced Dewey's philosophy of education (Dewey, 1933; Woolever & Scott, 1987). Dewey saw the classroom as a microcosm of a democratic society. The teacher would model democratic ideals and the students would learn by experience, including cooperative activities, the skills and attitudes necessary to maintain a democratic way of life (Dewey, 1933; Lynd, 1953).

Dewey described the mind as a verb, as something to do rather than something to be filled like a sponge. He believed that students needed to interact with their environment in order to think and therefore every student should be involved in lively activity around a project (Dewey, 1933; Ernst, 1953). The project method, or scientific method of problem solving, was Dewey's alternative to the traditional method and content of teaching.

For projects to be educative, Dewey (1933) argued, they should fit the student's interest, involve the student actively, have intrinsic worth, present problems that lead to new questions and inquiry, and involve a considerable time span.

The teacher's job was to guide the students and to ensure there was class interaction and intercommunication. That did not mean, nor did Dewey advocate, a hands-off approach:

> There is a present tendency in so-called advanced schools of educational thought . . . to say in effect, let us surround pupils with materials, tools, appliances etc., and let pupils respond according to their own desires. Above all, let us not suggest any end or plan to the students; let us not suggest to them what they shall do, for that is unwarranted trespass upon their sacred intellectual individuality since the essence of such individuality is to set up ends and means. Now such a method is really stupid for it attempts the impossible, which is always stupid, and it misconceives the conditions of independent thinking. (Dewey in Rusk, 1956, p. 106)

Nor did Dewey advocate a permissive attitude towards behavior. He stressed that a teacher could not allow students to be unruly, uncooperative nor to stand in the way of others (Dewey, 1938/1972).

Cognitive learning paradigm. Dewey (1931/1970) described the mind in a mentally active student as "roaming far and wide" (p. 34) but returning with what it found and constantly making judgments as to relationships, relevancies and bearings upon a central theme. "The outcome of this process is a continuously growing intellectual integration" (p. 34). This process of integration included seeking, finding, using, organizing, digesting and assimilating information.

Like Rousseau and Pestalozzi, Dewey (1933, 1938/1972) talked about the interaction between the learner and the environment. His theory was that experience modified the person and this modification affected subsequent experiences in terms of attitudes, emotions, learning and effects on the environment. What one learned in one situation, he asserted, helped to direct the understanding and action of future situations. The person/environment interaction led to a continual reconstruction of impulses and thought.

According to Dewey (1933), reflective thinking involved suggesting, defining the problem, hypothesizing, reasoning and testing. He rejected objects as being sufficient to lead to this kind of thinking. Whether he was talking about Pestalozzi's object method or the distorted American version of such is unclear. Pestalozzi did in fact talk about comparing and relating objects to others. In any case, Dewey expressed it:

> The notion that we have only to put physical objects before the senses in order to impress ideas upon the mind amounts almost to a superstitution. Things and sensations develop the child, indeed, but only when he uses them in mastering his body and coordinating his actions. . . . and to do it in a way that compels thinking as to how they are related to one another and to the realization of ends. (p. 255)

Education and society. For Dewey, there were two connections between society and education. First, as explained above, Dewey thought the school should be a microcosm of society and as such the educational process should be democratic. In addition, education in a democracy had to prepare students to make informed rational decisions and to solve problems so that they could help society to fit to new situations, not to adjust themselves to fit society as it was (Woolever & Scott, 1987).

Dewey believed that technological developments had led to a state of ethical confusion and conflict. The emphasis on acquiring material things, he said, had stimulated competitive tendencies in human nature to such an excessive degree that people had devalued democracy and had become indifferent and passive. The way to undo the damage was to teach students to be cooperative, to be sensitive to the defects in society and to have the ability to re-create society (Dewey & Childs, 1933/1969).

Contribution to the concept of active learning. Dewey gives us the concepts of student interest, the power of the student's natural energy, cooperative activities, learning by doing, the project method, the scientific method of problem solving, inquiry, reflective thinking, education as a microcosm of democracy, student ability to re-create society, and intellectual integration.

Results. Dewey's philosophies and theories became the bases of the paradigms of the active learning Proponents who followed him and also of the active learning Movements (See Part II). His name, although he tried to disassociate himself, became connected to the term 'progressive education.'

William Heard Kilpatrick (1871-1965)

Historical context. After Dewey moved from the University of Chicago to Columbia University, in 1904, his writing attracted William Heard Kilpatrick who became a graduate student there. Kilpatrick (1918) outlined a general method of teaching that he believed reflected Dewey's ideas. He called it the project method, defining a project as a "purposeful activity carried to completion in a natural setting"(p. 320).

He wrote an article called the "Project Method," which the Teachers College Record printed in September, 1918. For some unexplained reasons, the article started a sort of project method mania. The explosion of interest required 60,000 reprints and rekindled the child-centered faction of the Progressive Education Movement (See Part II)(Kliebard, 1985).

Worth and ability of the student. Like Rousseau and Pestalozzi, Kilpatrick believed in the student's natural ability and in the benefits of teaching the student in a natural way. Somewhere in the student's potential, he asserted, lay the key to the revitalization of education (Connell, 1980).

Rejection of traditional education. Kilpatrick posited that the inflexibility of traditional room set-ups and of the traditional teacher-student relationship left nothing to nature, nothing to spontaneity, and nothing to free activity nor natural impulses; instead it led to blind, passive unintelligent obedience and conformity (Connell, 1980; Kilpatrick, 1929). Teachers, Kilpatrick argued, were mainly concerned with students being able to recite their lessons accurately and to complete their practice drills without error (Tyler, 1975).

What education should be. Always, Kilpatrick (1918, 1929)) talked of action and experience as the basis of learning. His theory was that students learned best through activities rather than as passive receivers. Education, he argued, should not be a preparation for life, but should be life itself, and since life was composed of purposeful acts, education should be also. This purposeful act - a project - should be the center of the curriculum. Kilpatrick believed that working on projects, of which

Dewey's problem solving was just one kind, would increase student motivation and involvement, turn routine school work into a bustle of meaningful activity and, at the same time, increase student knowledge and skill.

Kilpatrick (1918, 1919) theorized that learning increased in direct proportion to the wholeheartedness of the student's purpose and involvement. This theory was tied to Thorndike's principles of mind-set, readiness, determined actions, success and satisfaction, all of which, he believed, related inherently to learning. In other words, the more that coercion was necessary, the less learning that occurred.

The teacher's job was to determine the student's readiness and interest and to arrange and formulate a program accordingly. Kilpatrick (1929) argued that the teacher had to guide students and to arrange situations where the students would be responsible for their own learning and would have their own purposes for that learning, but the teacher also had to know when to intervene in the student's work.

Cognitive learning paradigm. Kilpatrick's (1929) learning paradigm is not as clear as that of the other Proponents. The underpinnings for his project method seem to be more of a behaviorist paradigm based on Thorndike's R-S connections and practice. Kilpatrick believed that the build-up of these connections, bonds which were formed, constituted learning. (Is this the same as Pestalozzi's building of mental structures?) He also had a theory of attendant learning; that is that no one learned just one thing at a time - learning could include becoming self-confident, gaining self-respect and responsibility, and knowing how to cooperate with others. (Is

this from the student's preception of the environment?)

However, there also seem to be components of a cognitive paradigm within the behavioral underpinnings - Kilpatrick asserted that thinking was the intelligent, interactive adaptation between the person and the environment (Kilpatrick, 1933/1969).

Education and society. Kilpatrick (1929) believed that education was the fundamental method of social progress and reform. Since the worthy life consisted of purposeful activity, the students needed to learn how to develop that kind of life. Schools, therefore, should study current social problems and have students work at significant projects from which they could acquire an attitude of social responsibility and the ability to work towards a new society (Connell, 1980).

Kilpatrick (1929) argued that since society was in a continual change at a rate and to a degree unknown before, students had to be able to make decisions. If they were unable to do that, he believed, they would live as serfs or slaves. The best way to learn to make decisions and to problem solve was by using the project method which included defining a purpose, planning, executing and judging results.

Contribution to the concept of active learning. Kilpatrick has given us the concepts of purposeful activity, the project method, experience and action, education as life, the student's wholeheartedness, the ratio of coercion to learning, and the need for students to be able to make decisions and to take responsibility to work towards a new society.

Results. In How We Learn (1929), Kilpatrick described the results of "An Experiment with the Project Curriculum" conducted by his former student

Ellsworth Collins. The experiment lasted three years and involved two teachers and forty-three students. "Scientific tests" showed the students were:

> a little better in arithmetic, spelling, writing, reading, and history than the children of any school in the locality. They were a great deal better in geography. . . . Children read more newspapers than in any of the neighboring schools. They had read more books. . . . Attendance increased from 70 to almost 100 %. . . . Everyone finished the whole eight years' course and everyone . . . went on to high school, although formerly only one-quarter had gone to high school. (p. 51)

The project method was not new; Rousseau, Pestalozzi and Dewey had all recommended it. Dewey, in fact, did not fully approve of Kilpatrick's method because he felt the subject areas were still too isolated from each other and that the projects were too short and trivial to be educative (Kliebard, 1985). Rousseau (1762/1957) also had warned that all projects should be connected by some chain of reasoning so that they would follow an orderly sequence in the mind to help students understand and remember.

Although in the 1920's and 1930's, the project method evolved into the Activity Movement (See Part II), the method never became the basic unit of instruction in the school curriculum as Kilpatrick had hoped. The influence still exists today, however, especially in science and social studies classes (Kliebard, 1985).

## Jean Piaget (1896-1981)

Historical context. Piaget spent most of his working life in Geneva at the Rousseau Institute studying thinking processes in children. He was a biologist and psychologist and was always interested in how humans adapted to the environment. In the 1920's and 1930's, there was contact between

Piaget and American educators and his influence could be seen as Dewey talked of equilibrium and assimilation. However, Piaget's greatest influence began in the late 1950's in this country and that influence extends to the present time (Connell, 1980).

Piaget's theories mark a shift from the previous Proponents' emphasis on a philosophy of education to a greater emphasis on the psychology of learning.

Worth and ability of the student. Piaget believed that students were anything but helpless, in fact that they were capable of teaching adults. His theory was that children experienced four stages of consecutive cognitive development and that each stage increased the child's ability to think abstractly (Hill, 1985).

Rejection of traditional education. Piaget posited that the traditional instructional method of teacher telling students required that the teacher and student (listener), have mutual communication frameworks, but that that was not realistic. He argued that a student heard what he perceived and that might not be the same thing as what the teacher was saying. What teachers taught, therefore, was not always what the students learned. Another reason for his rejection of traditional teaching methods was that he disagreed with the associated behaviorist theory that knowledge originated outside of the learner (Labinowicz, 1980).

What education should be. For Piaget, there were four principles of learning: a) students should construct their own learning for the knowledge to be meaningful; b) students learned best when they could be active and

interact with concrete materials; c) learning should be student-centered and individualized; and d) social interaction and cooperative work should play a significant role in the classroom (Weil & Murphy, 1982). Students, he claimed, needed to get physical knowledge from the senses; to get logical knowledge from manipulating objects; and to have social interaction to stimulate thinking (Labinowicz, 1980).

He saw the teacher's role as: a) developing an environment where students could discover for themselves; b) diagnosing student development; c) creating cognitive conflicts to induce thinking; and d) promoting social interaction (Weil & Murphy, 1982).

Cognitive learning paradigm. Piaget described mental development as a process of equilibrium in response to external intrusion. In the interaction with the environment, he theorized, the student assimilated the external world into the existing cognitive structure (schemata - ways of perceiving, understanding and thinking about the world) and in turn changed or altered those structures to accomodate the world. The processes of assimilation and accomodation created equilibrium (Weil & Murphy, 1982). When an external disturbance caused disequilibrium, he believed, the student had to think in order to resolve the conflict. The process of maintaining equilibrium in relation to the environment was what created cognitive growth (Labinowicz, 1980).

Education and society. By the 1950's, Piaget was witnessing technological changes accompanied by unprecedented societal problems such as pollution, lack of energy resources, over-population and crime. His goal for education became to create men of vision who could forsee such problems,

consider long term effects of their decisions and then exercise social responsibility. Education, he believed, should form minds that could think critically - minds that would not passively accept everything they saw or heard. Students, he said, should be active and should find out for themselves what was verifiable so that they could become intelligent voters, consumers, and people with vision who could help the society of the future to achieve progress (Labinowicz, 1980).

Contribution to the concept of active learning. Piaget gives us the concepts of active manipulation of objects, social interaction and cooperative work, child-centered education, discovery, construction of knowledge, critical thinking, cognitive growth as a process of interaction with the environment, and social responsibility.

## Contemporary Perspectives

Diane Ravitch (1983) describes education at the end of World War II as being in a sorry state. Teacher shortage and low salaries were a national problem. There was a critical need for new classrooms and schools, not only because repairs had been deferred by the Depression and the War, but because of the baby boom. Since 1940, 350,000 teachers had left the public schools, either for the service or better jobs; there were 70,000 teaching jobs unfilled; as many as 60,000 teachers had only a high school education or less; and salaries were lower than those of garbage collectors.

The unprecedented growth in the high school population added to the burden of curriculum decisions. In the 1930's, schools had raised the compulsory age to keep teenagers out of the depressed job market. Some

educators were calling for diversification of curriculum to meet the needs of all the students, while university leaders and others, led by the historian Arthur Bestor, called for a return to classical education. There was also criticism from radical right groups who charged that Communists (i.e. Progressives) had infiltrated American education and were destroying the system. In addition, the Cold War arms race with the Soviet Union generated governmental and industrial demands that the schools produce more scientists and engineers. All of these factors led to heated debate over educational policies in the late 1940's and 1950's (Spring, 1986).

Sputnik's launching in 1957, ended the debate over what American education should be. The Government established the National Defense Education Act in 1958, which provided fellowships, grants and loans to encourage the study of math and science curricula. Soon afterwards money was flowing from the National Science Foundation to develop 'new' curricula (Ravitch, 1983; Spring, 1986).

Groups of curriculum reformers rewrote curriculum in science, math and social studies. They called it the 'new science,' the 'new math,' and the 'new social studies.' These curriculum developers, including educators, scholars and scientists, shared a common goal in that they all wanted to develop packages that used a discovery/inquiry method and inductive reasoning. Their assumptions were that this method would be more interesting to the students and that the students would retain more information for longer if they discovered answers for themselves. The kits, packages and materials of the 'new' curricula contained a lot of hands-on materials (Ravitch, 1983).

Curiously, this 'new method' was right out of the Progressives' bag of tricks which many educators, university scholars and radical right-wing groups had defamed during the 1940's and 1950's.

Jerome Bruner (1915- )

Historical context. Bruner (1983) was born blind into a middle class family in the suburbs of new York City. He talks of being bored at school as a child (his sight had been restored by surgery) and getting more pleasure out of "looking up things in his father's Encyclopedia Britannica" (p. 9) because whenever he found one thing, it always led to looking for another. He graduated from Duke and Harvard and worked for the State Department, during World War II, monitoring enemy broadcasts and analyzing propaganda and public opinion.

This led to an interest in processes underlying opinion formation, perception, thought and learning and when he returned to Harvard, he became involved in behavioral sciences research. He concentrated on the study of the mind and founded the Center for Cognitive Studies at Harvard in 1960. This was shortly after he had gone to Geneva and had visited and debated with Piaget and also shortly after Piaget had published The Growth of Logical Thinking from Childhood to Adolescence, a theoretical examination of cognitive development and account of fifteen related experiments (Bruner, 1971; Connell, 1980).

Bruner(1963) was one of the group of American scholars, educators and scientists, as explained above, who were rewriting the nation's math and science curricula as a result of the educational debate which occurred at the end of World War II and the launching of Sputnik.

Worth and ability of the student. According to Bruner (1971), all students are capable, but the teacher has to provide experiences that will convince the students of their capability to solve problems. For students, discovery is really discovering what is already in their own heads.

Rejection of traditional education. Bruner rejects the teacher -as-knowledge dispenser model of traditional education, its system of reward and punishments, and the teaching of rote abilities (Bruner, 1961). The teaching of knowledge out of context, he posits, results in a ritual rote nonsense, and, because the content of the told knowledge is not connected nor associated with action, students do not form the necessary cognitive connections (Bruner, 1971).

What education should be. Bruner's (1961) theory is that whatever a person discovers for himself is what he knows. This doesn't refer to something that was unknown to others previously, but means knowledge obtained by and for oneself. Discovery, Bruner argues, should be in a context of action and preferably students should work in a group. The benefits of discovery include increased intellectual ability, the ability to problem solve and the shift from extrinsic to intrinsic rewards.

Bruner (1971) describes the teacher's role in a discovery-learning model as a sharing role. The teacher does need to give the students a firm grasp of the subject matter but at the same time needs to make the student an autonomous and self-propelled thinker - one who can think on his own after his formal education has ended.

Cognitive learning paradigm. According to Bruner (1961, 1971), discovery is a matter of rearranging or transforming evidence or material in such a way that leads to new insights and new inquiry. Discovery leads the student to be a constructionist in that he organizes what he encounters in such a manner that he can retrieve and use it again. Bruner argues that when students organize material in terms of their own interests and cognitive structures, that material has the best chance of being accessible in memory. Cognitive strategies, he adds, are processes by which the learner controls his own learning and thinking, and discovery methods develop those strategies (Gagne, 1976).

Education and society. Bruner (1971) believes that education should be socially as well as personally relevant and therefore what is taught should have some bearing on social problems. In addition, students need to be able to solve problems in order to address society's challenges.

Contribution to the concept of active learning. Bruner gives us the concepts of active discovery, group work, problem solving, inquiry and insights, construction of learning, social relevance and meeting society's challenges.

Results. The new discovery/inquiry curricula had a short life. The educational reform in which Bruner was involved was challenged and interrupted by a series of national crises in the 1960's, including the Civil Rights Movement, the assassinations of President Kennedy, Robert Kennedy and Martin Luther King, America's involvement in Vietnam, and youth rebellions against the Establishment. This turmoil and conflict

led to new indictments against the school, its curriculum and its lack of attention to social issues (Ravitch, 1983).

This new conflict, however, probably was not the only factor in the demise of the new curricula. First of all, this was a top-down curriculum implementation - the teachers did not have a choice as to whether they used it or not. Secondly, the scholars, professors, and scientists who had convened at various times to write this new curriculum were "strange bedfellows indeed" (Hayden, 1983, p. 3). Bruner (1963) talks excitedly of the 1959, Woods Hole gathering when some thirty-five scientists, scholars and educators met to discuss improvement in the science curricula for the primary and secondary schools. Of the thirty-four men, only two were precollege teachers. Those two were from Phillips Academy, hardly a school representative of primary and secondary public schools. With great enthusiasm, Bruner (1963) tells of the men who had earned world renown in theoretical and experimental physics who were helping to write the ideal physics course for high school students. Similarly, the groups which convened to write the 'new math' and the 'new social studies' had little classroom teacher input.

And yet there was another problem. Within two years of the development of the new social studies program called MACOS, Man - A Course of Study, the John Birch Society had rallied right-wing groups to fight the program and eventually this led to three different Federal Committees investigating the program and to its death (Bruner, 1971).

From that time to the present, there has been a continual debate between advocates of schooling for society's needs and advocates of a back

to basics approach (Ravitch, 1983; Spring, 1986).

Paulo Freire (1921- )

Historical context. Freire was born in Recife, Brazil into a middle class family. By 1930, when a military junta gained control of the government, the economy in Brazil had drastically changed. Freire and his family experienced poverty first hand to the extent that Freire suffered from malnutrition as an elementary student. For more than twenty years, the government alternated between a dictatorship and various military coups until 1956, when a democratic regime prevailed (Cohn, 1988).

Freire received his doctorate in law and philosophy in 1959, from the University of Recife and became a labor union lawyer hoping to help his local village to become more democratic (Cohn, 1988). Since the 1940's, Freire (1974) had been working to combat adult illiteracy, and in 1963, conceived the idea of conscientizaçao - a method of teaching adults which was based on discussion circles, the purpose of which was the development of critical consciousness, and on praxis - action based on reflection and analysis. In 1964, however, a military coup disrupted his campaign; he was imprisoned for seventy days and then exiled for his subversive educational program (Cohn, 1988).

Freire and his family moved to Chile where he became an Unesco Consultant for agrarian reform. In 1969, he became a visiting scholar at Harvard University at the Center for the Study of Development and Social Change. and the following year an educational consultant for the World

Council of Churches in Geneva where he developed a literacy program for Tanzia and Guinea-Bissau (Cohn, 1988; McLaren, 1989).

Freire returned to Brazil in 1981, after the government had enacted democratic reforms, to teach at the universities in Sao Paulo (Cohn, 1988).

Worth and ability of student. Freire's (1981) theory of education is based on his conviction that every person is capable of looking critically at his world, and given the proper tools, the person can perceive himself in relation to a social reality and deal critically with it. His philosophy is grounded in his faith in the ability of all people. His work "begins and ends with the individual subject" (McLaren, 1989, p. 195), and he has a fundamental faith in human dialogue.

Rejection of traditional education. For Freire (1974) traditional education involves a vertical relationship in which the teachers are on top, the students are on the bottom and there is no room for student dialogue. In his view, traditional education consists of working on a student rather than with him. This education, he (1981) asserts, leaves no place for original thought and is used as an instrument to force youth to conform to the existing social system (1974).

Freire (1974) calls this the banking model of education. In this model, the teacher - the banker - deposits into the depositories - the students. They receive, file the deposits and that is that.

What education should be. According to Freire (1981), education should involve a critical dialogue and an active search for knowledge. Students, he believes, need to be inquiring, need to create and re-create,

and need to participate actively in their own learning. The teacher's job, he argues, is to present problems in the context of concrete world problems and to create a democratic classroom so that students can learn fundamental behaviors and tenets of democracy and how to solve problems. In addition, the teacher should help students to form critical attitudes and reflections towards the world in order to transform it.

Cognitive learning paradigm. When interacting with the environment, Freire (1981) asserts, the student discovers and mentally organizes knowledge. This knowledge or learning becomes the basis for knowledge which will replace it. Freire believes that acquisition of knowledge requires constant searching and that the only person who learns is the one who invents and re-invents what he learns and then uses it in concrete situations.

Education and society. Freire is adamant that the ultimate goal of education should be for learners to exercise the right to participate consciously and actively in a socio/historical transformation of society (Freire, 1981; McLaren, 1989). Schools, he (1981) argues, should act as change agents, but since action without critical reflection is disastrous, education should lead students to reflective cultural action and revolution.

Freire (1981) believes that poverty and illiteracy are related to oppressive societal structures and unequal exercise of power in society, but that man has the ability, through education, to transform society.

Contribution to the concept of active learning. Freire gives us the concepts of learning through interaction with the environment, inquiry, active participation, democracy in action, invention and re-invention,

problem solving, reciprocal dialogue, critical reflection and schools as change agents.

Eliot Wigginton (1942- )

Historical context. Wigginton grew up in Georgia and spent much of his weekends visiting Rabun County in southern Appalachia. Wigginton attended a private high school where his public school background proved deficient enough that he had to repeat the ninth grade. This experience led to his resentment against school and a lack of effort until one teacher believed enough in his ability to convince him to submit a composition to the school's literary magazine. It was this success which Wigginton later remembered in developing his own teaching methods (Puckett, 1989).

When Wigginton graduated from Cornell, he decided to return to Rabun County. It was 1966. The United States was involved in Vietnam; a civil rights movement was escalating; the youth were rebelling against authority. In Rabun county, they had their own problems of poverty and illiteracy. Appalachia had seen a history of exploitation, first by the coal and lumber barons and then by big corporations. It had seen and was seeing a shift in its economic base from family farming to industrialization, tourism and second home development (Puckett, 1989).

Wigginton went to teach at a conservative, semi-private high school, the philosophy of which was based in an evangelical mission to get students to know Jesus. Wigginton found his students rebellious and indifferent, and in an attempt to get them involved in his English class, asked them for

suggestions on better ways to teach English. The result was Foxfire, a magazine which the students wrote and produced on the oral history of Appalachian people. Cultural heritage became the motivating force for learning basic skills (Wigginton, 1985).

The first Foxfire book, in March of 1972, was a huge success and sold 100,000 books in five months. Foxfire became a nonprofit organization and now hires several staff members as teachers and publishers. The organization is also involved in teacher workshops and a teacher communication network. The concept has spread throughout the country (Puckett, 1989).

Worth and ability of the student. The root of the whole Foxfire project is Wigginton's belief in the student's ability to achieve in an academic context. He has complete faith in the ability of the students. He believes they are capable of (among other tasks) picking and analyzing topics, conducting interviews, writing script, publishing a magazine, making records and producing radio and TV presentations. Students are intelligent, Wigginton asserts, - they just lack adult experience (Meek, 1990).

Rejection of traditional education. In Wigginton's (1985) view, in a traditional classroom setting, students are the bored, passive receivers of processed information. The teacher is the boss and repository of all knowledge. In addition, the teacher and class are bound to lectures, textbooks and memorization, a combination which leads to rebellion and the alienation of students.

What education should be. Education, Wigginton (1985) argues, should be based on the principles of democratic, experiental learning. Work has

to flow from the student's own interests, reflections and evaluations. Students have to be active, and the work should not be an end in itself but should lead to other work. Wigginton believes that the work should be difficult enough to keep students at the edge of their competence; that there should be peer teaching, teamwork and small group work; that there should be an appreciative audience for the student's work; that academic integrity should be absolutely clear; and that students should use texts only as resources. Projects should be useful, productive, positive and rewarding activities.

The teacher's job, according to Wigginton (1985), is to be a collaborator, team leader and guide while continually evaluating the student's skills and the content of the student's work.

Cognitive learning paradigm. Wigginton's (1989) theory is that what the student learns himself is what he knows. Actions leading to discoveries are internalized (cognitive processes) and what the child discovers himself he will remember. Aunt Addie Norton, a woman of Appalachia, expresses it best for Wigginton:

> I tell you one thing, if you learn it by yourself, if you have to get down and dig for it, it never leaves you. It stays there as long as you live because you had to dig it out of the mud before you learned it. (in Wigginton, 1985, intro.)

Education and society. Wigginton believes that learning should be a social enterprise and that school work should have a connection to the surrounding community and the real world. To get along in society and to be productive members of the society, he argues, students have to be able to think, to work cooperatively and to solve problems (Meek, 1990).

Contribution to the concept of active learning. Wigginton gives us the concepts of experiential learning, learning by doing, team work, peer teaching, small group work, democratic education, reciprocal student/teacher relationship, problem solving, effect of an audience, student interest, internalized discoveries and community/school relationships.

Results. Although the Foxfire concept has spread to other parts of the country, the cloned programs have not always been successful. This has led to a charge that this is a leader-dependent model, that is, it only succeeds when the leader is there. In the early 1980's, Wigginton began to receive letters of dismay from teachers whose Foxfire programs were not working. At about the same time, sales of Foxfire books plummeted and Doubleday ended its long association with Foxfire (Puckett, 1989; Wigginton, 1985).

These events, combined with the back to basic movement of the early 1980's, led Wigginton to a time of reflection, during which he realized that Foxfire is not a magazine but a philosophy of education. He and his associates tried to analyze the educational goals, pedagogical issues and underpinnings of the Foxfire model and worked on revising the curriculum while keeping the basic tenets of Dewey, which in reflection, Wigginton had realized were his own (Wigginton, 1985).

Wigginton (1985) admits that he had lost sight of the academic agenda in the rush to publish a magazine - that administrative issues had overridden the educational ones and that classes had become more technical than academic. In testing his students, he discovered some knew no more

about writing at the end of the year than they had at the beginning, though they had become excellent technicians.

Puckett's (1989) study is the first formal evaluation of the Foxfire program. Through primary and secondary documents, observations and interviews, he found that: a) Foxfire falls short of Wigginton's ideal and of its reputation; b) the Foxfire magazine production was not an effective or efficient way to teach writing style; c) publication deadlines had become more important than the educational processes; d) students had become increasingly distanced from Foxfire's central organization; and e) staff members failed to apply critical elements of Wigginton's philosophy in their Foxfire classes.

On the other hand, Puckett (1989) claims that compared to the education described in Goodlad (1984) and in Sizer (1986), Foxfire's accomplishments have been extraordinary especially in its community/school relationships, and in providing students with the opportunity to make decisions and to conduct their own learning.

Shlomo Sharan (1932- )

Historical context. In 1947, the United Nations voted to partition Palestine into separate Jewish and Arab states and to leave Jerusalem as an international city. A year later, when Zionists proclaimed the Republic of Israel, a two year war with Palestinians began and, uprooted by the conflict, 750,000 Palestinians went to live as refugees in neighboring Arab lands (Eban, 1984).

From 1949-1952, as Israel absorbed nearly 600,000 immigrants, the Jewish population doubled and this created social and economic problems. The Six Day War between Jordan and Syria, in 1967, in which Israel gained

the Sinai Peninsula and Gaza Strip from Egypt, the Golan Heights from Syria, and the West Bank of the Jordan River from Jordan, ended with an uneasy peace. Since then, the Middle East has seen a continuous series of border raids, boycotts and turmoil (Eban, 1984).

Israel is now a country of two groups of immigrants - Jews from the Muslim countries of the Middle East, Asia and North Africa and those who came from Europe, the Americas and South Africa. The integration of these two groups is one of the central problems facing Israel's educational system (Sharan et al., 1985).

Sharan (Sharan & Sharan, 1976), formerly Sheldon Singer, was born in Milwaukee, Wisconsin. He received his Ph.D in clinical psychology from Yeshiva University in New York and served as Staff Psychologist in the Department of Psychiatry at the Albert Einstein College of Medicine and the Bronx Municipal Hospital Center. In 1966, he moved to Israel and became a teacher at Tel Aviv University where his interest turned to the psycho/social issues in education. He is now a professor at the School of Education, Tel Aviv University.

Worth and ability of the student. Sharan (Sharan & Sharan, 1976) believes students have the ability to cooperate with each other in a learning context and to take responsibility for their own learning.

Rejection of traditional education. Sharan (Sharan & Sharan, 1976) rejects the judging and watching of students that is inherent in a traditional teaching model in which the teacher dominates and transmits knowledge and the student is passive. This model, he says, does not allow the student to process

information and therefore does not lead to any meaning nor comprehension for the student.

What education should be. Sharan's (Sharan & Sharan, 1976; Sharan & Sharan, 1989/1990) theory is that students learn best through problem solving activities and that topics and methods of learning become personally relevant to the students when they ( the students) engage in the process of investigation typical of the particular discipline or profession - that is, in a science class, the students work as scientists; in a history class, students work as historians. He argues that the student's interests, abilities, and ideas should determine the educational planning and also that through cooperative work, students can achieve more than they can alone.

The teacher's job, according to Sharan, is to guide and advise the students and to help plan and select the materials. The teacher should use the curriculum as a stimulus to, not the limit of, the student's work, and both the teacher and the curriculum should be flexible (Sharan & Sharan, 1976).

Cognitive learning paradigm. Sharan's (Sharan & Sharan, 1976) cognitive theory is a derivative of that of Dewey and Piaget. Through active learning, interaction with the environment, the student organizes and assimilates the experience and this process helps the student to develop logical thought and higher order thinking skills. He believes that this process of organizing and assimilating the new experiences occurs in the context of the concepts the student already possesses. Students understand environmental events from the perspectives of their intellectual backgrounds and level of development.

Education in society. Again Sharan (Sharan & Sharan, 1976) borrows his philosophy from Dewey and Piaget. That philosophy states that students learn best in a social context. Cooperative activities, Sharan argues, encourage the development of cooperative relationships and allows the practice of democratic skills. People who help each other and join forces to achieve a common goal will generally grow more positive about each other and be willing and able to interact constructively when performing a collective task.

He (1985) adds his own pluralistic ideology - education needs to support ethnic identity and inter-ethnic cooperation directed at cultivating equal co-existence and mutual respect between different ethnic groups. This, he asserts, will allow students to keep their own integrity. The complexity of a multi-ethnic population society requires learning to cooperate and therefore students need to learn to handle tensions and conflicts and to deal creatively with them. Ignored differences, Sharan believes, will assert themselves eventually.

In addition, Sharan (1985) believes that cooperation in school can lead to heightened responsibility for the fate and progress of a larger society. He sees cooperation in both school and society as a form of societal exchange in which all subgroups play a role in building the social order while both society and school safeguard and support the integrity of each group.

Contribution to the concept of active learning. From Sharan we have the concepts of cooperative learning, group work, problem solving, democratic skills, investigation, student interest, active participation, interaction

with the environment, learning in a social context, and recognizing and supporting ethnic identity.

Summary

All of the Proponents address the four themes of student ability and worth, rejection of the traditional educational method and content, an active relationship of education to society, and a cognitive learning paradigm in their educational philosophies and theories. While the Proponents are not all identical, either in emphasis on the four themes nor in their descriptions of an active learning model, as described in What education should be, they all use or address the following concepts or variations thereof: learning by doing, discovering and/or problem solving; re-creating or reforming society; cooperative or group learning; reflective or critical thinking; interaction with the environment and social interaction; intellectual integration and construction of knowledge; student capability; student interests; democratic skills and methods; and reciprocal student/teacher relationships.

I have described Results for some of the Proponents and not for others. This has more to do with availability and relevancy of certain results than with whether or not I think there are important results of each of the Proponent's theories, philosophies or programs.

Also, I want to add that while I have stressed that all the Proponents believe in the ability and worth of the student, I am not inferring that a traditional teacher does not. However, the method of the traditional teacher sends a message that might indicate that (See Part III).

## Part II

### Related Educational Movements

In this part of the paper, I describe and discuss four major pedagogical Movements associated with the concept of active learning. This does not mean that there were or are no other movements connected to the paradigm, however, the Movements I address are associated with one or more of the Proponents in Part I. I examine related applications and research (both historical and current where appropriate) for each of the Movements.

### The Progressive Education Movement

The Progressive Education Movement developed simultaneously and independently in Europe and the United States at the end of the 19th Century. The advocates believed that traditional schools had little connection with the needs of the new technical and industrial society and provided inadequate preparation for a democratic society of the future. They saw a world which was experiencing drastic changes in social organization and in human relations (Connell, 1980).

In the United States, there were two factions of the Progressive Movement. The community-centered group considered the needs of the community and the kind of national or work society they wished to foster. They wanted schools to encourage cooperation, altruism, internationalism and group life. The child-centered faction, which dominated the Movement in the 1920's and 1930's, emphasized individual freedom, self-expression, individual initiative and no prescribed curriculum (Connell, 1980).

According to Ravitch (1983), there was never a clear cut definition of Progressive programs. The Movement was more of an attitude about children and democracy. But what it was not was extremely clear. Progressives rejected classical education, expository teaching, competition between students for grades, the use of memory and rote learning, and domination by the teacher. What the Movement emphasized was active learning - experiences, experiments, problem solving, the scientific method, projects, cooperative planning, individual interests, the relationship of school to the community, the interrelatedness of subject matter and democracy in action.

At about the time that Kilpatrick's project method became a hot item, the Progressive Movement took on a new life. The child-centered part of the Movement became the driving force and the emphasis became the child's freedom and individuality. The 1930's and the Great Depression saw more changes. As unemployed youth became a problem, high schools raised the requirement age to keep students in school. This led to questions about curriculum for these students and also led to the use of testing, advocated by the Progressives, to separate students into ability groups to meet individual needs (Ravitch, 1983).

Dewey (1938/1972) was opposed to the child-centered direction of this 'new education' as it was called. He saw it as a negative response to traditional education problems rather than as a positive reconstruction of educational goals and philosophy. He wrote his book, Experience and Education (1938/1972) to clarify his own views and to express dismay at what the Progressive Movement had become. Dewey did not support the

child-centered permissiveness. He described student direction of his own activity without the teacher's guidance as nonsense and stressed the need for continual teacher evaluation of the student's progress.

The 1940's witnessed a growing disenchantment with the 'new education' and the lack of attention to the problems of the secondary schools. The attack in the late 1940's against the Progressive Education Movement increased drastically. The secretary of the NEA's National Commission for the Defense of Democracy through Education reported, in 1951, that the number of attacks on public schools had increased rapidly since 1945. The pace was so fast that more than twice as many attacks had occurred in the three year period since 1948, as had occurred in the three year period before (Spring, 1986). The attackers were: a) right-wing radical groups who identified Progressive Education with a Communist plot; b) representatives of academia who claimed Progressive Education was anti-intellectual; and c) a group who claimed that the 'new education' was undemocratic because it tracked individuals into certain academic groups (Ravitch, 1983).

In 1955, the Progressive Education Association disintegrated. Surprisingly, what the 'new curricula' of the early 1960's represented were the ideas of discovery and inquiry - ideas of Rousseau, Pestalozzi and Dewey - the original Progressives. By the mid 1960's, in the midst of the new social turmoil (See Part I), the pendulum swung to a 'new' progressivism in an attempt to address problems of race and poverty. Suddenly there was a substantial body of protest literature against traditional teaching (whatever that had come to mean) and about free schools and deschooling (Goodman, 1964; Neill, 1960; Kozol, 1967; Illich, 1970).

According to the literature, open classrooms, open campuses, and elective curriculum became the rage, but by the mid-1970's, there was disillusionment with the schools' new freedoms. A back to basics movement took hold in the early 1980's and is still holding on in the public schools.

Research. In 1933, the Progressive Education Association conducted an extensive study of progressive education in the secondary schools. This Eight Year Study involved thirty high schools which implemented progressive methods ranging from slight variations of traditional education to radical innovations. Three hundred colleges agreed to eliminate standard entrance requirements for graduates of these high schools and to accept the students on the basis of their interest and their ability to work successfully as determined by the high school (Greene, 1942).

The methods and activities in the schools varied tremendously; however, all schools agreed on the basic active learning tenets that: a) students learn more by doing things that have meaning to them; b) the doing is important and involves the whole person; c) growth coming from such experiences leads to greater understanding and more intellectual readiness to new situations; and d) school should be a microcosm of democracy. The involved schools ranged from the most elite private schools to the most disadvantaged public schools. Ten of the thirty schools were public, the others were private schools or affiliated with universities (Aiken, 1942).

Of the original 2000 students, the researchers matched 1475 Progressive students with graduates of conventional schools in terms of scholastic aptitude, interests, and socio-economic background. The follow-up began in

1936 as the first graduates entered college. Researchers added a new graduating class each year until 1939. This part of the study involved thirty-eight of the original 300 colleges (Walten & Travers, 1963). Data included college records, instructors' reports, written work, and student questionnaires and interviews (Aiken, 1942).

The conclusions were that the graduates of the Progressive schools: a) earned higher total grade averages and higher grade averages in all subjects except foreign language; b) received slightly more academic honors; c) were more often judged to be objective, precise and curious; d) were more resourceful; and e) had a more active concern for world affairs. The graduates of the most experimental schools were strikingly more successful than their matches, while there were not large differences between the least progressive and their comparisons (Walten & Travers, 1963).

There were weaknesses in the research. It was difficult to control all known variables. For example, in the Progressive groups, the high schools recommended specific students for the study - not so of the control groups. Also, the results do not take into account the effect of novelty, nor the effect that might have occurred as a result of the experimental schools wanting to change their programs, wanting to make a difference with their students and investing energy into the experience. A safe conclusion, according to Tyler (1975) is that reducing the amount of authoritarian control over students doesn't necessarily result in academic impairment.

Current research. Gray and Chanoff (1986) conducted a follow-up study

of graduates of the Sudbury Valley School in Framingham, Massachusetts. This is a primary and secondary school with no entrance nor learning requirements. The school supports student-directed activities and offers courses only when students show interest. There are no grades, no evaluations. To graduate, the student has to defend a thesis at a meeting of the school's Assembly and has to prove he is ready to take responsibility for himself. Enrollment vacillates between fifty-five and seventy-five.

The study (Gray & Chanoff, 1986) included seventy-eight graduates. At the time these graduates had entered the Sudbury School, over one-third had had serious school problems including truancy, rebellion, learning disabilities, anxiety and emotional disturbances. The authors surveyed the graduates by questionnaires, phone and personal interviews. The analysis of the data revealed that there were no apparent difficulties at being admitted to colleges and that the graduates were successful in a wide range of careers. Students reported that the school had helped them develop their own interests and responsibility as well as to develop initiative, curiosity, the ability to communicate with all people and an appreciation of democratic values.

Other results showed that over half had graduated from or were enrolled in a college and of the rest, over 25% had been enrolled in some form of post secondary academic work. Two graduates were Ph.D candidates. Three had Master's degrees. Two thirds of those who had gone to college felt the education had not handicapped them in college. Others said they were weak in academic areas especially in math or had felt intimidated because college

was so different from their SVS experience. Except for three, who felt that the education had handicapped them socially, all those who had gone to college said their schooling was a benefit to them in that they had better motivation, good attitudes and were self-directed. (Gray & Chanoff, 1986).

Researcher bias is a question in this study since one of the authors has a child in the program. He does admit who he is and describes the efforts he took to compensate (Gray & chanoff, 1986).

The Activity Movement

The Activity Movement evolved from Kilpatrick's project method and was part of the Progressive Education Movement but not entirely the same. The term occurs in the literature about 1929 (Connell, 1980). The premise of the Movement was that acquiring knowledge should be an active process and that that process should involve a project. The Movement stressed that: a) the interest and needs of the student should determine the nature of the project; b) there should be enough different kinds of projects to allow all students to succeed; c) the work should be cooperative; and d) school organization should be democratic.

The Activity Movement became so large that in 1934, the National Society for the Study of Education devoted an entire volume of its 33rd Yearbook to its study. The investigating committee found the biggest problem in the study was trying to define what 'activity' meant; but the members did find several common denominators from forty-two solicited definitions, twenty-five published 'activity' curricula, and fifteen books on the subject. These

common denominators included emphasis on: a) the activity of the learner; b) knowledge as the means to true development not as an end; c) activity as a way to discover and solve problems; d) education as group, cooperative and democratic social processes; e) student interaction with the environment; and f) student interest and direction. It was Kilpatrick (See Part I) who analyzed and consolidated the definitions (Whipple, 1934).

In the study, solicited comments from university professors and school administrators reported the following positive aspects of the activity method. The method: a) appreciates the creative efforts of the students; b) improves students' abilities to think, plan and do; c) has set high values on student interest and experience; d) has brought real living into the school; e) develops initiative; f) leads to better understanding of life; g) creates informal student/teacher relationships; h) provides motivation; i) increases the student's interest in school; j) leads students to read more; k) allows for more self-expression; and l) leads to standards of achievement, in subject areas, as high or higher than a traditional method (Whipple, 1934).

However, the study showed that there were many criticisms of the method. As a group, critics stressed that: a) students are too immature to make their own decisions; b) students need guidance and instruction; c) activity by itself has no purpose; d) the project method lacks clear purpose; e) there are no verified results; f) students need to be taught how to cooperate; g) it should be used only during part of the day; h) results are hard to evaluate; i) classes are often too big and noisy; j) it is too difficult

to measure objectives such as attitudes, understanding, and the ability to apply knowledge (Whipple, 1934).

It is interesting that of the forty-two solicited definitions, twenty-eight were from professors and thirteen were from school administrators. The comments and criticisms came from seven college professors and seven administrators. The committee did not survey classroom teachers for a definition nor for comments about the activity method.

The Activity Movement died with the Progressive Education Movement, but teachers still use basic concepts of the project method as supplements to school programs (Kliebard, 1985).

Research. The literature (Geyer, 1936) discusses the difficulty in measuring or studying what the project work was designed to accomplish - that is, such dependent variables as creativity, attitudes, and abilities to problem solve. There is also a problem in most of the research, although to a different degree in each study, of lack of control of such independent variables as extent and kind of teacher involvement, teacher motivation, time on task and student background. Within the boundaries of these limitations, most studies did show positive results for the project method.

Kilpatrick reported on one of the earliest studies on the project method as an incentive for others to try it (See Kilpatrick, Part I). The results of that study which involved a pure project method school and which was conducted by Kilpatrick's former student, Ellsworth Collins, showed that students of the activity school were superior to those of the control

schools (Kilpatrick, 1929).

Collins later studied two junior high schools, one a traditional and the other a 'project' school. After administering thirteen standardized tests to students matched by age and IQ, Collins concluded the students in the experimental school learned traditional material while working on their projects as well as or better than the students in the traditional school (Geyer, 1936).

Results of three studies (Geyer, 1936) of the Lincoln School of Teachers College were similar. Scores on the Stanford Achievement Tests showed students learned traditional material as well as students in the traditional schools even though the Lincoln School considered such material of relatively less importance and gave it less attention. Intelligence and achievement tests over a ten year period at the school revealed that students maintained approximately the same achievement level as those in the subject matter schools.

A study of the Winnetka Schools (Washburn & Rath, 1927), which had activity (projects) during the first half of the day and an individualized subject matter program during the other half, concluded that their graduates were somewhat better prepared than those from three other towns of similar social composition. The Winnetka students joined the students of the three other towns in a regional high school. The Winnetka students were the only ones who scored above average on all major subject tests.

While most studies reported favorable results, some did not. A survey of first grade reading in California (Lee, 1933) involved testing over 11,000 first grade students. The analysis involved almost 4000 useable

returns from 144 classrooms representing all different kinds and sizes of schools. Teachers completed tabulation sheets regarding types and amount of activity work in their classrooms. Results showed that students from classrooms in which a great deal of activity work took place, did not learn to read as well as other students. The problem with this study was in trying to determine what the amount of activity really was since the teachers themselves described and determined the ranking of that independent variable.

Another study (Tate, 1936) which revealed negative results took place in the Whitney School in Chicago. There were 237 subjects in grades two, four and eight. There were two groups, "equal in all factors that strongly influence learning" (p. 122), in each of the grade levels - the experimental, project method groups and the control group in which the teacher could use any instructional method. The same teacher taught both groups. The experimental groups met first to determine the curriculum for the control groups on the following day. The teachers followed a strict definition for the project method including that the activity had to be that of the student's own planning, choosing, and engineering.

Conclusions (Tate, 1936) from devised tests were that: a) the conventional method was superior to the project method in academic outcomes; b) the project method was inferior in traits such as leadership, initiative, making inferences and judgments which the project method was supposed to teach; c) non project students were superior to project students in recalling concrete objects and in using abstract thinking; and d) the project teaching was fairly effective in achievement but ineffective in

retention of achievement.

The New York City Schools conducted the largest experiment in activity education (Greene, 1942). In that experiment, eighteen 'activity' schools were paired with control schools. The schools represented the major areas, economic backgrounds and populations of the city. The experiment started in the first grade in the first year and then a subsequent grade each year joined the experiment (Tyler, 1975).

In 1940, a committee reviewed documents, which Kilpatrick and staff members from the New York Board of Education had developed, to clarify the definition of activity schools. The committee identified sixty-one features as part of the activity school concept, based on the definition of project method. Armed with a check-list which contained these items, the committee visited all of the classrooms (Tyler, 1975).

Results showed that: a) only one-third of the classrooms in the activity schools, yet one-fifth of the control classes, were using as many as fifty of the necessary characteristics; b) about one-half of the activity classrooms and one-third of the control classes used thirty-five of the items; and c) one-sixth of the activity classes and two-fifths of the control classes used less than thirty of the items. Since this made it difficult to distinguish experimental from control classes, the committee added to the plan the comparison of three groups of classrooms - those employing more than fifty, those using thirty to fifty, and those using less than thirty items from both experimental and control schools. The mean test scores of those using fifty or more items were higher than those for the eighteen activity schools, and the means for the classes using

less than thirty items were lower than the means of the control schools (Tyler, 1975).

The conclusions were that activity students surpassed the control students in leadership, experimentation, self-direction, participation in oral discussion, explaining facts, and applying generalizations but were slightly below the controls in academic achievement. Activity students liked school more, were more cooperative and more self-confident (Greene, 1942).

Current research. A review of contemporary research (Bredderman, 1983) involving fifty-seven studies on the effectiveness of three major activity-based elementary science programs shows: a) gains in creativity, intelligence, language and math; b) that disadvantaged students derived greater benefits than others; and c) that in three follow-up studies, the graduates of activity-based elementary programs were not recognizable from the control groups once they entered the traditional science programs in the middle schools. In all outcome areas, results were positive, but not dramatically so.

Nowhere in the review does the author define activity, however, he refers in several places to the activity-based programs as developments of the curriculum innovations of the 1960's. This would refer to the discovery/inquiry method. At the same time, the author describes the activities as using direct experience and experimentation and being process-oriented which could be describing the activity method. This, as with the problem of defining activity and control in the classes in the New York City study, highlights the difficulty in terminology in the field of active learning.

The Discovery/Inquiry Movement

Sputnik launched the Discovery/Inquiry Movement in 1957. This was America's answer to the problem of producing more and better scientists and mathematicians. Although discovery and inquiry were always part of the Progressive Education and Activity Movements, suddenly it was its own Movement.

If the active learning concept is a minefield as Wigginton (1989) says, then the Discovery/Inquiry Movement is a swamp - a thick, murky, muddy, quick-sand-like swamp. Discovery and inquiry mean different things to different proponents of the Movement. The most common definition has discovery referring to self-learning, figuring out, and to learning which leads to inquiry. Inquiry most commonly has the same meaning as John Dewey's reflective thinking and problem solving. To make it more complicated, the discovery of this Movement is Socrates' inquiry - a questioning method which leads students to their own answers.

Some describe discovery and inquiry as a two part process - discovery is the first part and inquiry is the second; others call the same two part process Discovery Part I and Discovery Part II (Muthall & Snook, 1973). The method of discovery ranges from teacher questioning while students sit in their seats and eventually get the right answer to students figuring out their own way to discover and then carrying out their own discovery.

The underlying theory is as murky as the definitions but apparently was derived from the fields of cognitive psychology, child development and the study of creativity (Muthall & Snook, 1973). To Bruner (1961), one of the main proponents and inspirations of this method and Movement,

discovery is an intellectual act that occurs when the student actively participates in the learning process. Bruner's theory is that learning by discovery increases intellectual potency, aids memory processing and leads to an intrinsic reward system.

He (1961) and others (Muthall & Snook, 1973) believe the method produces knowledge which transfers and develops problem solving ability. They believe that the student doesn't just learn the discovery insight, but also learns the process of discovery itself, and that discovery is the most meaningful kind of learning.

The Discovery/Inquiry method was the basis for the 'new math,' the 'new science' and the 'new social studies' of the 1960's (See Part I). Most discovery programs included hands-on activities and a strong learning by doing component - thus its connection to the active learning concept (Massialas, 1985). By the mid 1960's (See Bruner, Part I), education critics were calling for a new and different education. While the terms discovery and inquiry still exist in the literature and in a few research studies, it does not approach the volume that existed in the 1960's.

Research. Problems in research (Wittrock, 1966) include: a) how to conduct research when discovery and inquiry are both the means and the ends - that is the method of learning (discovery and inquiry) is also the objective (discovery and inquiry); b) a wide variety of dependent variables such as transfer, retention, problem solving, and creativity; c) semantic inconsistencies; and d) problems of measuring teacher intervention in the

discovery experience. Keeping this in mind, the research shows mainly positive results from this form of active learning.

In a study by Kersh (1962), ninety high school students, selected on the basis of pretest ability in arithmetical and geometrical concepts necessary to the experimental task, were taught two new rules of addition by a programmed booklet procedure. After an introduction, the teacher gave one-third of the students individual guidance in discovering the explanation for the rules (guided discovery); half were taught the explanation by a programmed booklet (directed learning); and the others were given no further instruction (rote learning).

Results of a questionnaire, testing recall and transfer, given three days, two weeks and six weeks after the lesson, favored rote learning and guided discovery groups. According to Kersh (1962), the data supports the hypothesis that self-discovery motivates the student to practice more and thus to remember and transfer more than direct teaching does. The directed groups were superior in learning rate and immediate recall, but the no help groups were superior in terms of retention and transfer after a period of approximately one month. Kersh concluded that learning by discovery is only superior to learning with external direction if the discovery method increases student motivation to pursue the task. In this study the teacher's individual guidance was a socratic questioning method.

For several studies, involving different classes in two Chicago high schools over a three year period, teachers developed and used new discovery materials. The researchers (Massialas & Zevin, 1967), believing standardized

testing techniques were not appropriate for measuring objectives such as student ability to engage in inquiry, student ability to determine their own learning experiences and student motivation, used transcribed discourse and interviews with teachers and students to determine outcomes. Analysis of the data showed that: a) there was a greater exchange of ideas between students; b) student participation doubled; c) students learned how to organize and form hypotheses and to use, interpret and apply evidence; d) students with lower IQ's were most creative but didn't always follow through with work; and e) students looked at knowledge as tentative rather than absolute.

One of the studies in Chicago (Massialas & Cox, 1966) involved thirty-five students in a world history class for one year. The teacher used historical documents to develop students' abilities to discover and explain political and social contexts. The teacher introduced a new discovery episode every two weeks and students had to gather all missing information and construct an explanatory theory for the episode.

Results (Massialas & Cox, 1966) showed that students were able to participate in the process of discovery and inquiry which included defining a problem, planning how to solve, forming an hypothesis, gathering the data, testing the hypothesis and arriving at a theory. In addition, the students became more independent and more motivated and made wider use of library resources.

A six week study by Worthen (1968) which involved 423 fifth and sixth grade math students, half taught by the discovery method and the

other half by the expository method, showed the expository method to be superior on initial learning but that the discovery method was superior on retention and transfer.

Current research. Wilen (1989), who defines inquiry as the analysis of problems in a logical and systematic way, says research confirms that inquiry is as effective as other methods of teaching content and may be better than most in teaching the process of thinking. The greatest strength of the method is that students learn content and the process at the same time.

In a study at Vanderbilt University (Kinzer, 1984), two fifth grade classes learning LOGO were involved in comparing a discovery instruction model and a tutorial model. In the discovery class, the teacher introduced new commands and concepts and gave examples, and then the students spent the rest of the time working by themselves. In the other class, after the initial introduction, the students learned with a computer tutorial. The study tested mastery of LOGO commands, comprehension, and ability to produce a LOGO program. The results showed no difference between the two instructional methods in mastery of commands, but a significant difference in favor of discovery in comprehension and in ability to produce a program.

## The Cooperative Learning Movement

Group work and cooperative learning have been a part of education for centuries, but in the last fifteen years there have been three developments which have given it the form of a movement: the development of specific group work methods, the development of a substantial research tradition, and

its mushrooming use (Slavin, 1989).

There are dozens of cooperative learning methods, some of which provide a great deal of structure, extrinsic motivation for learning, predetermined, teacher-defined learning objectives and are basically teacher dominated. I consider these, examples of which are the STAD, TGT, TAI, and CIRC methods of Slavin, the Learning Together variations of Johnson and Johnson, and the Jigsaw methods of Aronson and Slavin, as variations on traditional teaching methods rather than methods of active learning. With these variations (Slavin, 1989), teachers do almost all of the planning and directing; the teaching is mostly expository except that in these methods it is sometimes students teaching students; and the objective is usually the learning of basic skills involving right and wrong answers. Basically, these forms of cooperative methods are variations on drill.

On the other hand, Sharan's (Sharan et al., 1985) Group Investigation method and Kagan's (1985) Co-op, Co-op method, although also concerned with academic achievement, have as their primary emphasis the learning process and the development of higher level thinking skills. The objective is to get the students actively involved in their own learning and for the students to learn a critical thinking process; students control the goals, learning is student-directed, and the rewards are intrinsic.

The Group Investigation model is a plan in which the students work in small groups and use cooperative inquiry, group discussion and cooperative planning in conducting a project. The method evolved out of a combination of the dynamics of the democratic process and academic inquiry. There are six steps in the Group Investigation project method. First the

students organize groups, identify topics and raise questions with the teacher; next the students plan the investigation - each group member has a job; the third step is to carry out the research - students gather data, analyze, evaluate, and draw conclusions; next the students plan and prepare a report and presentation in which the student will become the teacher; the groups then present to the whole class; and finally, peers and teachers evaluate the work (Sharan & Sharan, 1976, 1989/1990).

Kagan (1985) developed the Co-op, Co-op method at the University of California in Riverside. This method evolved over a ten year period and started as a practical way to involve university students in psychology classes by having them explore in-depth topics in which they were interested. Like the Group Investigation method, Co-op, Co-op uses a group research and presentation method. There are ten steps to Kagan's method: students discuss topics; students or teachers select groups; group members get acquainted; groups select topics; groups divide work among members; members do research; members present research results to other group members; groups prepare presentation; groups present programs to the whole class; and the teacher and students evaluate the work. The similarity to the Group Investigation method is obvious.

This is Kagan's (1985) version of Dewey's democratic philosophy of education; it is experiential and makes use of physical and social surroundings to provide worthwile experiences and embodies democratic, cooperative learning. Kagan quotes Dewey:

The way is . . . to allow the suggestion made to develop into a

> plan and project by means of the further suggestions contributed and organized into a whole by the members of the group. The plan . . . is a cooperative enterprise, not a dictation. The teacher's suggestion is . . . a starting point. (p. 440)

Research. Slavin's (1989) review of the literature on group learning shows that effects of cooperative learning on achievement are clearly positive as long as there are group goals and individual accountability. However, while academic achievement is an important objective of the Group Investigation and Co-op, Co-op methods, it is not the only nor most important objective. Other objectives are the development of higher level thinking skills - that is the ability to find, organize, interpret and apply data, use inferences and draw conclusions - and the fostering of cooperative, inter-ethnic behavior and attitudes (Kagan, Zahn, Widaman, Schwarzwald & Tyrell, 1985; Sharan & Sharan, 1976).

Kagan (1985) describes informal test results of the Co-op, Co-op method: written statements of university students showed increased learning and improved social relations while informal evaluation of a high school study revealed problems with using this method at that level: some students would not cooperate; some refused to participate at all; and some were absent often.

In the Riverside Cooperative Learning Project (Kagan, Zahn, Widaman, Schwarzwald & Tyrell, 1985) high school teachers taught two similar classes for eight weeks. One class used the traditional teaching method and the other used the Co-op, Co-op method. The study involved 250 students in ten classrooms - sixty percent were Anglo-Americans; twenty-five percent were

black; and fifteen percent were Mexican-American. These groups were divided proportionately among the traditional and Co-op, Co-op classes.

Results (Kagan, Zahn, Widaman, Schwarzwald & Tyrell, 1985) showed that classroom structures impacted differently on cooperative and competitive individuals and on minority and majority groups. There was a favorable impact of the Co-op, Co-op method on Mexican-Americans, but not for the others. Minority students manifested very little giving towards the majority students in the traditional classrooms, but were quite cooperative towards the majority students in the Co-op, Co-op classrooms. The Co-op, Co-op method produced more balanced social relations. Prosocial development was somewhat higher in the traditional classes among Anglo-Americans, but higher in the Co-op, Co-op classes for Mexican-Americans and blacks. This was a short experiment that involved only one hour a day for a few weeks.

Sharan and Sharan (1989/1990) report the results of twelve years of research involving ten large scale experiments on the Group Investigation model. Five of the studies assessed achievement at elementary and secondary levels. These studies showed that the Group Investigation classes had a higher level of academic achievement than the students in traditional classes. The Group Investigation students also did better on questions assessing higher level learning although sometimes only just as well on acquiring information. On tests of social interaction, the traditional teaching methods stimulated a great deal of competition among students while the Group Investigation method promoted cooperation and mutual assistance and

social interaction among classmates from different ethnic groups.

A more recent study (Sharan & Shachar, 1988) involved five eighth grade junior high classes in Israel. Two-thirds of the students were from Jewish families who had come from the West and one-third were from families who had come from the Middle East (See Sharan, Part I). Four classes used traditional teaching methods and four used the Group Investigation method. Teachers were assigned at random and participated in a series of workshops during the pilot part of the study. During the actual experiment there were 197 students in the Group Investigation group and 154 in the traditional group.

Based on pre and post tests, student-prepared discussions, and videotapes, results showed: a) a very superior level of achievement in the Group Investigation classes as compared to the traditional classes in both high and low level thinking; b) the Middle Eastern students received more cooperative statements in the Group Investigation classes; c) in the traditional classes, the Western students received more cooperative statements than the Middle Eastern students did; d) in the prepared discussions, the Western students spoke somewhat less and the Middle Eastern students somewhat more often if they were from the Group Investigation classes, compared with the students from the traditional classes; e) student cooperation predicted, to a significant degree, performance on written tests of academic achievement (Sharan & Shachar, 1988).

Sherman (1988) conducted a study with two high school biology classes - one class used a traditional teaching method and the other used the Group Investigation method to learn the same unit. Results showed no significant difference on the pretest and both had significant higher posttest scores

at the .05 level of significance, but neither was superior to the other in producing academic achievement.

Although this study shows a different result from Sharan's studies, the method was not exactly the same. In Sherman's study, the students received grades for the research project and the teacher determined the subtopics; in addition, all members of a group received the same grade. This was a white, rural middle class high school in which biology was an elective course; most of the students in the classes were in the top one-third of their class.

The results (Page, 1989b) of my own students' involvement in the National History Day Program, which uses a group research/presentation method similar to the Group Investigation approach, support Sharan's findings and add other dimensions. Based on informal measures of student written evaluations, student grades, observations and interviews with students, compared to academically similar students in previous classes using alternative instructional methods, the History Day students showed dramatic increase in involvement, learning, comprehension, motivation, and self-confidence. The students learned problem solving, media, drama, display, presentation, communication, and writing skills. The students, in addition, went one step further than those in the Group Investigation and Co-op, Co-op methods. They not only made class presentations, but through their work, developed the material for the class curriculum. The class projects lasted from six to nine months.

The Sharan, Kagan, and Sherman results are encouraging and have helped put a dent in the dearth of research material on secondary school students and on the effects of active learning methods on higher level thinking skills.

Summary

Research results on the use of active learning methods are mainly positive. However, there are problems relating to the research. These problems include independent variable control and lack of effective tools to measure desired cognitive outcomes, such as the ability to think critically, apply knowledge and to problem solve, and affective outcomes, such as cooperative attitudes, motivation and attitudes of social responsibility. In addition, even though I have chosen several secondary school studies, most of the research is and has been conducted with elementary students.

This leads to several questions: a) If there were and are such positive results of active learning methods, why did the Progressive Education, Activity, and Discovery/Inquiry Movements fade away? b) How many teachers use active learning methods now? c) If teachers do not use active learning methods, why not? and d) Why are there so few studies on a secondary shcool level?

## Part III

## Analysis

In Part III, I will try to clarify, consolidate and commentate on what I have examined in Parts I and II. In relation to the concept of active learning, this section includes the following subtopics: Definition; Cognitive Learning Paradigm; Student/Teacher Relationship; Education and Society; Research; What's Old Is New Again; Classroom Teachers; Reinventing the Wheel; and Detecting Crap.

### Definition

As with the Activity and Discovery/Inquiry Movements in particular, semantic difficulties plague and handicap the analysis of the concept of active learning. Starting with the phrase itself, active learning, the question arises - how can there be learning if there is not some kind of action - if not physical action, then mental action? If it is true that learning inherently has to involve action then there is no such thing as inactive learning i.e. all learning is active.

The question is not, however, whether or not there can be learning without any kind of mental or physical action, but rather what is the difference between active (non-passive) learning and passive learning. According to active learning Proponents (See Part I), passive learning involves an accumulation of disconnected information that occurs when students do not take part in discovering their own learning or knowledge. Passive learning involves receiving ready-made knowledge transmitted by someone or something else.

An active learning model, however, involves the student being mentally

and/or physically active. The student conducts his own learning, discovers his own answers, solutions, concepts and relationships, and creates his own interpretations. Proponents emphasize the importance of students being actively involved in doing things in relation to their environments. These activities can take several forms such as working with objects, working on projects or being involved in investigative inquiry or in reflective discussion.

Most of the Proponents stress that physical action is as important as mental action. Rousseau, Pestalozzi, Dewey, Kilpatrick, Piaget, Bruner, Wigginton and Sharan advocate physical activity. Freire, involved in teaching adults, talks more of a mental action of reflective discussion, although one could call talking a physical action. Also, he recommends physical activities for younger students. All of the Movement models stress physical and mental activity although the discovery model can involve mainly a mental activity, depending on the teacher's role. For example, if a child sits in a chair answering questions until experiencing a discovery, the action is more mental than physical. In the Cooperative Learning Movement, only the Group Investigation and Co-op, Co-op methods involve active learning as defined above, and both involve physical action.

The <u>active</u> in active learning also refers to students being actively involved in the planning and choosing of their educational experiences. This is a matter of degree and debate among the active learning Proponents and Movements. The child-centered faction of the Progressive Education Movement would rank at the permissive end of a student-choice continuum,

while the Proponents stress teacher guidance, evaluation and direction. The questions become: a) How much guidance, evaluation and direction does a teacher use? b) Is this guidance, evaluation and direction covert or overt? and c) When does the teacher intervene?

Another confusion arises when it becomes clear that active learning refers to more than a way to learn. It also describes the form or kind of learning that results from that method of learning. The Proponents and the literature on the Movements define the resulting learning as the ability to engage in reflective thinking - that is to solve problems by defining the problem, by gathering, interpreting, organizing, categorizing and analyzing data, by forming and testing hypotheses and by drawing conclusions. In other words, through the method of active learning (doing their own learning), the students acquire the ability to think for themselves (do their own learning). There are different labels for this ability. Rousseau called it reasoning; Pestalozzi called it thinking for one's self; Dewey and Kilpatrick called it reflective thinking; Piaget and Wigginton called and call it critical thinking; Freire calls it critical reflection; To Bruner it is inquiry; and to Sharan it is higher order thinking.

Advocates of active learning may differ on the details of the concept, however, they all agree that it is not what Goodlad (1984) describes in his study of schooling:

> . . . a lot of teacher talk and a lot of student listening unless students are responding to teacher's questions or working on written assignments; almost invariably closed and factual questions; little corrective feedback and not guidance; and predominantly total class instructional configuration around traditional activities - all in a virtually affectless environment. (p. 242)

Cognitive Learning Paradigm

For the Proponents, the concept of a cognitive learning paradigm is a major part of the underpinning for their active learning models. The cognitive theory supposes a reciprocal interaction between the student and environment in which the student's schemata (mental structures - ways of perceiving and understanding) affect the student's perceptions of the environment (experiences) and consequent actions, and this experience in turn changes the student's schemata which in turn influences future learning and actions on the environment.

While the Proponents, except for Piaget, do not use the terms cognitive paradigm or schemata, their theories of learning express the same concept. They all refer to the role in learning of something similar to schemata: Rousseau called it a compound of ideas; Pestalozzi called it organized mental structures. To Dewey, it was intellectual integration; I am still not sure if Kilpatrick would think of his bonds as some kind of mental structure; Piaget used schemata; Bruner talks of cognitive sturctures; Freire and Sharan call it mentally organized knowledge; and to Wigginton it is internalized knowledge. Regardless of what they called or call this mental structure, they all agree that it influences the student's interaction with and perception of the environment and that the student's ensuing perceptions of the environment, in turn, affect this mental structure.

McLuhan (in Postman, 1969) would put a twist on the paradigm. He would say that the environment is the message and therefore what a student learns depends on how the environment is organized and what message that

organization gives to the student. Postman (p. 19) agrees that the critical content of any learning experience is the process (environment) through which the learning occurs. In a traditional classroom, students sit, listen and sometimes absorb information, but rarely make observations or solve problems for themselves. The changes in the student's mental structures (learning) in this kind of environment, the Proponents would say, are much smaller than changes in a student's schemata when the student is active in or on his environment.

Student/Teacher Relationship

The questions of amount and kind of teacher direction, guidance and evaluation (See Definition, Part III) and of classroom organization (See Cognitive Learning Paradigm, above) relate to the issue of student/teacher relationships in an active learning model. There are two components to this relationship. The first is a communication system component and the other is a student/teacher role component.

Communication system. In an active learning paradigm, as proposed by all the Proponents and assumed by all the Movements, the student/teacher communication system is a reciprocal one. However, in a traditional classroom, as Freire would say, the student/teacher communication system is a vertical one in which the teacher at the top transmits a message to the students at the bottom. Other Proponents describe this as a dominant/passive or sender/receiver system. There are several problems with this traditional classroom communication system:

1. According to Piaget, in a traditional, one-way communication classroom system, many students do not 'hear' what the teacher says. They

'hear' what they perceive - the message has meaning only in relation to how the student (receiver) perceives the source (the teacher), the environment (classroom organization), and himself (including past experiences). When a teacher is talking to thirty students at once, it is questionable how many students have the same communication framework as the teacher does and therefore questionable how many students receive the message as the teacher meant it.

2. Concerning the influence of the environment, McLuhan would say that when a teacher transmits knowledge in a one-way communication system, the learner (receiver) is learning something besides the transmitted knowledge from that method of transmission. For example, in this teacher dominated system, the student learns indirectly that he is not capable of, or can't be trusted in, discovering things by and for himself.

3. Another aspect of the student/teacher communication system is 'noise' (Seiler, 1984). If 'noise' is anything that interferes with a message, then there is more noise (interference) in a traditional classroom communication system than in a reciprocal one. The noise in a traditional classroom includes daydreaming, inattention, visual distractions, misunderstandings, boredom, lack of motivation, alientation and rebellion.

In a reciprocal communication system, however, the teacher and students are both senders and receivers, both teachers and learners. This system allows for the building of a common foundation of shared knowledge (Edwards, 1971) through a process of continual clarification, interpretation

and creation and re-creation of messages. The incidental learning in this system is that the student is capable of doing and thinking for himself; and the reciprocal communication system eliminates most of the 'noise' of a traditional classroom even though, in fact, the classroom might be much noisier.

All of the active learning models examined in this paper are reciprocal communication models except for one kind of discovery/inquiry model, in which the teacher questions and the students answer; the answers are more required responses than part of a two way communication system. In the Cooperative Learning models, only the Group Investigation and Co-op, Co-op models involve reciprocal communication systems. The other forms of cooperative learning allow student/student interaction, but the teacher dominates the communication system.

Student/Teacher roles. A reciprocal student/teacher communication system does not mean, however, that the teacher relinquishes responsibility. This leads to the issue of student and teacher roles in an active learning model. All of the Proponents try to make clear that while the students' role is to direct and do their own learning, they do not have license to do whatever they want to do and that the teacher's role is to guide, focus, suggest and continually evaluate the progress of the student.

Dewey and other Proponents warned and warn that the teacher has to: a) be aware of student behavior; b) be attentive to and evaluate the student's work; and c) keep the process heading to a relevant and meaningful conclusion. All of the Proponents, either overtly or by inference, recognized or recognize that the teacher has more experience, is more mature, and has a

responsibility to determine wheter or not the learning is educational or not.

The practical problem is that neither the reciprocal communication system nor the student/teacher roles translate into a concrete job description for the teacher. Because every activity, every class and every student is different, there are no definitive, definable, sequential steps which teachers can take which will ensure that this active learning environment will exist or will work. Teaching as a guide or coach and communicating in a reciprocal model require an intuitive sense about what intervention is necessary at what time and with whom.

This presents the additional dilemma of how much learning the student actually does by himself. If whatever understanding or discovery the student has arrived at is continually reshaped and reinterpreted, whether through a reciprocal communication system or teacher intervention, how much learning is really the student's? How does a teacher determine if what the student is learning involves erroneous concepts or inappropriate data if the teacher does not interfere? And how much of a student's search for solutions is really the search for what the student thinks is the teacher's right solution? There are no easy answers to these questions, but I propose that the dilemmas and uncertainties involved in an active learning paradigm are part of what keeps teachers locked in the traditional methods.

Education and Society

One of the most important underpinnings of the active learning concept is the belief in the importance of the relationship between education and

society, and, in particular, in the ability of the student to think critically about society so that as he matures, he can play an important role in the development, reform or re-creation of society. However, notall of the Proponents or Movements prioritize this philosophy or goal in the same way.

The philosophy that students should be able to think critically about society so that they would be able to participate in the modification and restructuring of that society was the driving force behind the Progressive Education Movement. The Activity Movement advocates, while agreeing that thinking critically about social problems was important, emphasized the theory that in order for students to learn how to live in a purposeful way, students had to practice purposeful activities in school.

With the Discovery/Inquiry Movement, while it was important for a person to be able to have a creative effect on society, cognitive development, which allowed for that to happen, was the focus. The external force created by the Government's panic over the launching of Sputnik had a marked effect on the priorities of that Movement. On the other hand, the leaders of the Cooperative Learning Movement work from a theoretical base that believes that students who practice cooperative learning will be better equipped to use cooperative methods in dealing with societal problems. However, the literature indicates at least an equal priority, for the Group Investigation and Co-op, Co-op methods, for students to develop critical thinking skills.

The Proponents stressed and stress the need for students to be able

*to think critically about society, but, as with the Movements, not always* for the same reason and not always with the same emphasis. Rousseau, Pestalozzi and Freire would be at the end of the continuum which emphasizes education for cultural and societal change and revolution. Bruner and Piaget would be at the end of the continuum which, while believing that education should provide the student with the ability to problem solve in society, stresses the necessary mental skills.

Rousseau wanted to make man self-reliant enough to avoid corruption, undo the evils of society, play a productive role in society, and do what was right for the public interest. Pestalozzi believed a regenerated man could regenerate society. Dewey and Kilpatrick wanted education to prepare students to be able to take part effectively in a democratic, changing society and to ensure social progress and reform.

While Piaget was more concerned with cognitive development and how that occurred, it was important to him that students be capable of exercising social responsibility and be able to forsee problems and solve them creatively. Bruner's emphasis is the same as that of Piaget.

A critical view of society (economic/political/social structures) as the oppressor and the common people as the oppressed is the main focus and underpinning of Freire's educational program of critical reflection, through which the oppressed will be able to gain power and create a cultural revolution.

Wigginton believes it is essential for the students to be involved in their community and that they be prepared to be productive members.

of society, however, the literature does not show Wigginton having the sense of urgency about societal conditions that some of the other Proponents have. Both Wigginton and Pestalozzi have and had, respectively, their students actively involved in their communities. For Sharan, it is important that students learn critical thinking skills in order to make appropriate decisions in a changing society, but he also stresses the necessity of students learning to deal with and be accepting of a pluralistic society.

Overall, the emphasis, in the active learning models, concerning the relationship of education to society, is on giving man the ability to lead society rather than to be led or controlled by it. This differs from the education/society relationship of the traditional education paradigm which concentrates on the student absorbing and accepting the existing cultural and societal values and roles.

Research

Most of the research studies associated with the active learning Movements and models involve group comparisons in which the researchers study two or more instructional methods. The research drawn from the four Movements shows a preponderance of positive effects although some results show no significant difference and some studies report negative findings.

Results of the Eight Year Study on Progressive Education showed graduates of the Progressive schools received higher grades, were more resourceful, more curious and had more honors, and that the lack of authoritarian control had not resulted in academic impairment. The current-

study of graduates of a progressive school, shows similar findings; the graduates have been successful in colleges and careers and their education helped them to develop interests, responsibility and curiosity.

Most research on activity (project) schools and programs showed superior academic achievement, however, there were some mixed results. The New York City experiment showed slightly lower academic achievement, in general, for the activity students as did the Lee and Tate studies. And while the New York City experiment concluded that the activity students exhibited better leadership, self direction, ability to problem solve and were more cooperative and self-confident, the Tate study concluded the opposite - that traditional students were better in those outcomes. The Tate study did report though that the activity method was effective in producing academic achievement even though the results were lower than in traditional classes. More current studies of activity programs show gains, though not dramatic, in intelligence, creativity and in all academic areas.

Studies of the discovery/inquiry method concluded that the method motivated students to do more and resulted in superior retention and transfer. Research also indicated that discovery students participated more, learned to problem solve, and became more independent. In the recent studies, discovery students show a significant difference in comprehension and ability to apply knowledge.

Of the Group Investigation studies, only the Sherman study shows no significant difference in academic achievement. The others report

a superior level of achievement in both high and low level thinking skills. The studies also conclude that cooperative learning promotes cooperation and social interaction among different ethnic groups.

However, there are several problems with this research:

1. In the earlier research especially, the lack of independent variable control presents a challenge for the interpreter. The studies did not address the effect of such variables as student motivation, activity novelty, teacher involvement, teacher attitude nor time on task on outcomes.

2. There is the question of how to conduct research when the means and the end are the same - that is when the process of learning, the means, becomes the objective (the process of learning leads to knowing and using the process of learning, or by discovering, you learn to discover).

3. There is a dearth of research material on the secondary education level although this may not be apparent from examining Part II. I made a special effort to find studies involving secondary students and reported as many as I could find, but the majority of research deals with elementary classes.

4. This research, except for that on cooperative learning and the contemporary examples related to the Movements, is old. It is possible to find current research on active learning (Page, 1989a), most of which shows positive effects and some of which shows no significant difference, but the new material is skimpy and scarce; and the semantics problem exists to a greater degree in the newer research than in the old.

5. The research on the Co-op, Co-op and Group Investigation methods,

which is among the most current research on active learning, has neglected an important variable. Both methods use production of a presentation as part of the group research process. I contend that that has more to do with the positive results than the fact that the students are working in a group.

6. It is time for research to concentrate on evaluating existing active learning models rather than on comparative studies. Research needs to investigate the purposes and goals of the models in terms of academic achievement, student growth and development, and relationship to society. In addition, it should focus on how and with what effects and difficulties schools and teachers implement active learning models.

7. Another focus of research should be that of teacher or school profile. Who does use active learning methods and why? How are the teachers who use these methods different in behavior, attitude and/or motivation from teachers who do not? What problems are inherent in the methods given today's school organization? What differences in administration are there in schools which implement active learning programs and in those which do not? What do the answers to these questions have to say about teacher education programs, teacher recruitment, teacher inservice and school restructuring?

## What's Old Is New Again

What is apparent from this historical search and analysis is that nothing is really new; aside from that, it has been disturbing and dis-

couraging to see scholars rename methods, philosophies and theories and peddle them as their own.

When Kilpatrick introduced the project method, it was not new. It is one of the oldest teaching methods in the world. Yet, Kilpatrick wrote and talked about it as if it were original with him. He did add the phrase 'purposeful activity' but in effect it was the practical version of John Dewey's problem solving method. Nor was the project method new with Dewey; Rousseau and Pestalozzi had both advocated the project method over one hundred years before.

The activity method was the project method - renamed. Sharan's Group Investigation method is the group research project that teachers have been using for years. It just has a new name. Kagan says it took him ten years to develop his Co-op, Co-op method, which is the same thing as Sharan's Group Investigation and therefore the same as the old group research project. It's amazing that Kagan admits that it took him ten years to develop that method and its associated steps. Classroom teachers would chuckle and/or snicker at that kind of indulgent time frame. I wonder why he didn't just check with a classroom teacher; he could have saved himself a lot of time.

The most annoying name change occurred with the discovery/inquiry method, a nomenclature invented by the reformers who developed the new curricula of the 1960's in response to the Sputnik launching. 'Discovery' was Socrates' inquiry, and all of the Proponents up to that time mentioned it; 'inquiry' was Dewey's problem solving and reflective thinking.

The literature of the late 1950's and early 1960's oozes with the atmosphere of panic and the rush to invent something that would cure America's education ills. The discovery/inquiry method was meant to be a way of putting education back on track and to end the anti-intellectualism of the Progressive Education Era; yet discovery and inquiry and the associated hands-on materials were part of the very core of the Progressive Movement. Were the public and the Government somehow so panicked that they easily believed that the new method was something different?

And what about Freire's critical reflection? How is that process different from Dewey's reflective thinking? The purpose is more revolutionary and its origin has a different societal backdrop, but the process is the same. Nor is Freire's critical theory of society and education new. Rousseau blamed the owning of private property for the state of France's oppressive aristocratic society:

> The first man who after fencing off a piece of land, took it upon himself to say, 'This belongs to me' and found people simple enough to believe him, was the true founder of . . . society. (in Carbone, 1985, p. 403)

Rousseau continued by saying that once the people began to claim property rights for themselves, the inequality of ability and skill led to economic inequality and the eventual subjugation of the poor by the wealthy. The wealthy and powerful gradually seized control of the government and used it to perpetuate inequality (Carbone, 1985). Rousseau also advocated education for cultural revolution.

While they mention underpinnings from other times or other people, most of the Proponents describe their renamed philosophies, theories and models as original creations.

Classroom Teachers

Pestalozzi and Wigginton are the only Proponents whose major teaching experiences were and are on a pre-college level. Their experiences can help us learn what developing, implementing, and conducting an active learning program entails and what issues it involves. Pestalozzi was continually experimenting and continually discouraged. While in his view, he was a failure, others, including the King of Prussia, Napoleon, and American school superintendents, thought his methods were successful enough to adopt them for their own countries and/or school systems. What is it like to be a teacher who uses these methods? What kind of support, interference, encouragement, harassment, or self-doubt does this teacher experience?

Wigginton realized a few years ago that many of his students were learning virtually nothing except for the technical skills involved in running a video camera, making a record or publishing a magazine. It is not that those skills are not important, Wigginton reflected, but some of the students hadn't learned anything about English. How does or can a teacher evaluate and monitor active learning methods and results?

Researchers have missed a valuable opportunity to study an active learning model, its ramifications and implications in ignoring Wigginton's Foxfire program that has been in effect for over twenty years. Puckett's (1989) is the first formal evaluation of the program.

Pestalozzi and Wigginton are not the only two teachers who have used or use active learning methods. There are teachers' descriptions in the literature of successful active learning programs or methods (Page, 1989b) that can provide information that is at least as important and meaningful

as research which is done in artifically created environments. There needs to be greater emphasis on teacher input as to the development, implementation and effects of such programs.

Reinventing the Wheel

Not all active learning models, in fact probably few teacher-developed models, are grounded in philosophy or theory. Teachers tend to use certain methods simply because they work for them. Wigginton and Kagan admit that developing their programs were efforts to make teaching and learning more effective and had little to do with consciously thinking about philosophy or theory. When circumstances forced Wigginton in the 1980's, to try to define his philosophy, he realized he had reinvented Dewey's wheel. His current writing shows his awareness of this philosophy and theory and how he is using these bases to guide modifications in his program (Puckett, 1989; Wigginton, 1989).

Curiously though, Wigginton expresses his anger and frustration at teacher education programs for not telling him and other student teachers about Dewey's works and theories. Yet, he discovered it, learned it by doing it, and figuring it out. After all, isn't that the whole idea?

In this search and analysis of the literature, I, too, have reinvented or at least consolidated Dewey's wheel, but it is my Deweyan wheel - I own it just as the students in an active learning model who create their own products, mental and/or physical, and consequent learning own their own wheels.

Detecting Crap

In June, 1989, at a local high school graduation ceremony, George Plimpton ended his colorful speech by saying that the best test of an education is the ability of the students to "detect crap" (borrowed no doubt from Postman and Weingartner, p. 3., who borrowed it, no doubt, from Hemingway). And, according to the Proponents, that is a major part of the core of active learning - students gain, through their own actions, the ability to think for themselves, to discriminate between the relevant and the irrelevant, to recognize propaganda, to interpret and analyze written and visual data and to be able to make intelligent decisions regarding themselves and their society rather than passively absorbing and accepting what they see or hear. Paul Simon, in one of his old songs, summarizes it:

> When I think back on all the crap I learned in high school, it's a wonder that I think at all. (Simon, 1973)

Note: I have used reference citations in Part III only when they refer to something not already discussed or cited.

## Part IV

## Conclusions

Conclusions in the Deweyan sense should not be endings but new beginnings - questions that lead to further inquiry. It is in that context that I present these conclusions.

### The Past

In 1947, Harold Rugg, of the Lincoln School of Teachers College, published a list of thirty-six "leading progressive ventures between 1870-1930" (Cremin, 1961, p. 277). In the list, there were only four public high schools. While Cremin considers it a misconception that private and university laboratory schools were the real pioneers of educational reform, throughout the literature, there is a preponderant amount of material on those schools in relation to that on public schools. In the Eight Year Study of Progressive High Schools, only about one-third of the high schools were public schools, and, while these ranged from an affluent to an inner city school, one-third could not have been the ratio of public schools to others existing at that time.

In addition, for the most part, the discussions of philosophies and theories of active learning concepts in the literature do not discriminate between elementary and secondary educational applications. The discussion of an active learning model or paradigm is in a generic context i.e. The Transformation of the School (Cremin, 1961), yet it seems that the implementation of these models, when it did occur, occurred mainly at the elementary level.

This leads to the question: How widespread was this transformation of American schools in connection with active learning models or methods? Read as a whole, the literature would give the impression that the implementation of active learning approaches in the schools was widespread and ongoing in the United States from the early 1900's to the late 1950's:

> The twenties and thirties were an age of reform in American education as thousands of local districts adopted one or another of the elements in the Progressive program. (Cremin, 1961, p. 291)

And in Ravitch (1983):

> Both its admirers and detractors acknowledged that progressive ideas had transformed the American public school during the first half of the twentieth century. (p. 44)

If active learning, as Ravitch asserts, was the first principle of the Progressive Movement, where was this active learning taking place? How representative of the nation's classrooms, especially secondary classrooms, is the literature? Were, in fact, the classrooms of the 1920's and 1930's as active learning oriented and permissive as the literature indicates? Was this transformation Cremin and Ravitch talk about a transformation and revolution in the schools or was it a transformation and revolution which school directors, researchers, philosophers, writers, and university professors created in written form?

I don't doubt that there were some schools restructured in order to implement an active learning (progressive) model and that there were many teachers who used these methods, but where is the evidence that a revolution or transformation occurred? There is virtually nothing in the literature from the classroom teacher and even when the literature discusses

people connected with this transformation, the people are not classroom teachers. The committee studying the Activity Movement asked school administrators (only seven) to describe and comment on their programs. How accurate is material that an administrator presents about his/her school program and how close is an administrator's description of a program to what goes on in a classroom?

Can any reader think of parents or grandparents who had anything but a traditional, teacher-directed education?

> It was 1930. It was an English class. We were studying poetry. I remember we had to read the Raven. The teacher tried to get us to explain what we got out of it, but mostly we had to memorize parts of it for homework and then recite the next day in class. Most of our classes were like this. We came to class, sat in our seats and didn't move unless we were told to. (Monks, 1990)

The State Board of Michigan studied secondary schools in 1939, and gave this sampling:

> High schools in New York State, like those in many other states, are now chiefly occupied with a more or less routine teaching of 'subjects' - Latin and geometry and physics, and the rest of a standard list of academic studies. If the New York State schools are to serve the broader purpose which they ought to serve, that of helping young people grow in the varied interests, abilities, and knowledge which will give them as hopeful a start as society can give them toward satisfying and productive lives the schools must eventually undertake an educational program different in many respects from their current program. (Spaulding in State Board of Education, 1939, p. 8)

And:

> Time: 1938. Place: an American high school. Setting: a democracy struggling against strangulation in an era marked by confused loyalties in the political realm, by unrest and deprivation, by much unnecessary ill-health, by high-pressure propaganda, by war and the threats of war, by many broken or ill-adjusted homes, by foolish spending, by high crime rates, by bad housing, and by a myriad of other urgent, real human problems. And what are the children in this

> school, in this age, in this culture, learning? They are learning the square of the sum of two numbers equals the sum of their squares plus twice their product; that President Millard Fillmore was the thirteenth President of the United States and held office from January 10, 1850, to March 4, 1853; that the capital of Honduras is Tegucigalpa; that there were two Peloponnesian Wars and three Punic Wars; that Latin verbs meaning command, obey, please, displease, serve, resist, and the like take the dative and that a gerund is a neuter verbal noun used in the oblique cases of the singular and governing the same case as its verb. (Learned & Wood in State Board of Education, 1939, p. 11)

And:

> English as now taught in most schools places too great emphasis on formal grammar and on the dissection of 'classics.' Whatever may be the merits of such exercises as a preparation for a career as an author, American boys and girls will be more profited by a wide-ranging program of reading for enjoyment and fact-gathering. A program of instruction in literature which makes people dislike the writings of Shakespeare, Scott and Emerson destroys even the possibility of its own usefulness. . . . Languages . . . are now studied by thousands of children who will never acquire sufficient skill in them to be able to translate a single page or conduct the simplest conversation. . . . All of this illustrates the general fact that education has, on the whole, been altogether too much concerned with facts. (Learned & Wood in State Board of Education, 1939, p. 12)

How much different was education in 1955, when various groups were calling for the end to Progressive education and its accompanying, so-called, child-centered nonsense? I remember my history class. The teacher, Mr. Nelson, was very big and carried a three foot pointer which he whacked on the desk every five minutes or so. For homework, we memorized pages of the history book and the next day in class we stood up one at a time and recited paragraphs from memory.

These quotations and reflections raise the questions as to just where was the active learning approach used, who were the teachers involved and who remembers it? What really did happen in school classrooms, in what

quantity and with what quality during the time, according to the literature, the Progressive Education and Activity Movements prevailed?

And where were the active learning methods of the discovery/inquiry method and accompanying new curricula of the 1960's implemented? According to Hayden (1983), when Americans' thoughts turned to Vietnam and racial issues in the mid-1960's, the new discovery/inquiry curricula disappeared in a wave of social crises and new educational reforms. The question is, when it existed, where was it? My own reflection, though in no way scientific, is that I taught in three different schools in two different parts of the country throughout the 1960's and with the exception of the new math, which was a topic of conversation in the media, I never heard of, used, or saw anyone else using, the new anything.

Based on his own experiences in, and observations of, classrooms, Cuban (1983) had similar questions about instructional methods. In a paper commissioned by the National Institute of Education, he examined changes, since 1870, in theory, curriculum and resources in relation to classroom instruction. He found that while theories, philosophies, textbooks and curricula changed, there was little evidence of change in teacher practice and that teacher-dominated instruction was remarkably stable at all levels of schooling. In a follow-up study, Cuban used photographs, textbooks, student recollection, teacher reports, administrative reports and published research reports in gathering descriptions of over 1200 classrooms. He studied schools in New York City, Washington, D.C. and Denver during the 1920's and 1930's, the Progressive Era; schools in Washington, D.C., New York City and North Dakota for the 1965-1975 time period; and the

schools in Arlington, Va, where he had been Superintendent, for the time period of 1975-1981.

His conclusions were that teaching practice had stayed remarkably unchanged since 1900, in both elementary and secondary schools and reflects a teacher-dominated model of instruction. There were exceptions which included the New York City Activity Schools of the 1930's and one-fourth of the Denver High School classrooms which were involved in the Eight Year Study on Progressive Education. He also found some progressive practices in a few elementary classrooms, but on the high school level, aside from more student oral reports and field trips, the instruction remained the same as it had been in 1900.

Al Shanker (in Cuban, 1983), President of the American Federation of Teachers, puts a slight twist on this conclusion:

> Ten thousand new teachers each year enter the New York City schools system as a result of retirement, death, job turnover, and attrition. These new teachers come from all over the country. They represent all religions, races, political persuasions, and educational institutions. But the amazing thing is that after three weeks in the classroom, you can't tell them from the teachers they replaced. (p. 159)

This leads to two questions about the past: If there was not a transformation, why wasn't there? If there was a transformation, where was it and what happened to it? It also leads to questions about the present: Is there a transformation, according to the literature, occurring in schools today? If so, does this transformation involve active learning concepts or models? How widespread is the use of active learning methods today?

## The Present

Transformations. The current literature talks of two new revolutions

or transformations in education - the computer or electronic revolution (U.S. Congress, 1988) and the Cooperative Learning Movement (Slavin, 1989/1990). The Office of Technology Assessment (U.S. Congress, 1988) recently studied the technological revolution in the schools. The study revealed that: a) in 1980, few schools had VCR's, but today about 90 percent do; b) television and electronic telecommunications are in place and distance learning projects are underway or in the planning stages in 35 states; c) between 1981 and 1987, the percentages of American schools with one or more computers increased from 18 to 95 percent; and d) in 1987, based on market research firm surveys, the public schools had about 1.7 million computers, or, if you recognize the T.H.E. Journal survey, 2.1 million.

Regarding the cooperative learning revolution, Slavin (1989/1990) claims that the use of cooperative learning techniques is mushrooming:

> Cooperative learning seems to be an extraordinary success. It has many viable and successful forms and hundreds of thousands of enthusiastic adherents. (p. 3)

I question, as I did with the reported transformation of the schools in the past, the assertion that changes in relation to the use of technology or cooperative learning methods are occurring on a large enough scale to call it a transformation or revolution. Most of the electronic equipment, at least in secondary schools, sits idle. In his dissertation on the history of technology use in the schools, Dockterman (1989) describes the television sets stuck to the walls in every classroom in a school in Cambridge, Ma, unused and covered in cobwebs. School cable TV studios go unused (Page, 1987).

As for computers, it is mainly students in computer classes who use them. Teachers, for a variety of reasons (See Cuban, 1986; Dockterman, 1989; and Jackson, 1968), rarely use them as part of instruction (See Becker, 1985; and Schug, 1988). A student teacher I was recently supervising took his math students to the computer lab to work on factoring problems. Other teachers in the school informed him he was the first teacher to use the lab in three years. From a personal recollection, in 1983, after much effort and argument, I convinced school administrators that I and fellow teachers needed a computer for instructional purposes. The Principal agreed to equip a room with a computer and large screen TV. In four years, I was the only teacher who used the computer, and at the end of that time when the computer needed repairing, the administration decided it wasn't worth the money.

As for cooperative learning, in all my visits to secondary schools to supervise student teachers and in all the schools in which I have taught, I have never seen experienced teachers using group work or cooperative methods. However, I do see student teachers making an effort to use small group work. First, though, they have a struggle to get the cooperating teacher to let them try it and when they succeed in that, the exercise itself is most often a disaster because the student teacher has given little thought to the organization, structure or purpose of the group work.

Connection to active learning. The use of electronic media equipment and the use of the majority of the cooperative learning methods (See Cooperative Learning Movement, Part II), when it does occur, is mainly

a variation on, or supplement to, a teacher-dominated classroom in which the purpose is not to get students to think for themselves, but to learn from someone else (i.e. someone in a group) or from something else (i.e. a video presentation or a computer program). Basically, except for rare exceptions, they are both forms of drill, teach for right and wrong answers and do not teach critical thinking skills.

Active learning in the schools today. In secondary schools, Goodlad (1984) reports that "boredom is a disease of epidemic proportions" (p. 242) and that "if the school improvement continues on its present course, our schools will remain very much as they are" (1983, p. 465). The Carnegie-supported study of high schools gives a similarly depressing picture of American schools:

> There is a sameness about how teachers approach their teaching . . . conventional, textbook-oriented, information filled; twenty minutes for students to read the assignments, respond to worksheets, answer questions at the end of the chapters, work on math problems, and write themes, while the teacher circulates the room. We saw very little inquiry teaching, and problem solving did not tend to be taught (Perrone, 1985, p. 650).

And from a high school student in 1990:

> I don't like any of the high school classes really. You just sit there and they tell you something and they give you a test and you tell it right back to them. Everybody has the same answer on the test if you do it right. (Clark, 1990)

The Proponents talked and talk continually of providing students with an education that would and will prepare them to think for themselves and to be able to problem solve. In 1939, in a study of secondary education, Parker wrote:

> An analysis of the current scene in comparison with that of earlier

> days makes it apparent that the kinds of attitudes, interests purposes, and abilities necessary to effective living have undergone far-reaching changes during the last fifty years. For illustrative purposes, one may suggest the increased pressures of various types, rendering necessary the assignment of a more significant and realistic role of the powers to think through the maze of propaganda to essential facts and sound conclusions. (State Board of Education, 1939, p. 8)

Students and teachers face many more pressures today than they did in 1939, and yet it appears that most of the classes are still teacher-directed and dominated. Students are still looking for right and wrong answers and not learning how to think. The literature (O'Neil, 1990) does describe some bright lights, however, in educational practice, especially the schools which belong to Ted Sizer's (1984) Coalition of Essential Schools. This is a group of schools which experiment with new methods and new school structures. While the programs in these schools differ, they all agree on several principles including that the main goal of schools is to help students to use their minds - to think- and that students should teach themselves.

These schools tend to be considered alternative schools. What about active learning methods and programs today in traditional schools? There are two that I know of (and I am sure there are more) - the Foxfire and National History Day Programs. The Foxfire program which began in the late 1960's actively involves students in producing magazines, books, radio shows, records and videotapes on local culture (See Wigginton, Part I). This program links the students' school program with their outside lives and with their community. At the same time it gives them academic and personal growth skills (Puckett, 1989).

The History Day Program began in the 1970's. Professors at Case Western Reserve University in Ohio developed History Day in an attempt to re-vitalize the teaching of history in secondary schools. History Day became a national program in the early 1980's. The purpose of the Program, which involved over 300,000 students in 1989, is to promote student competency and interest in carrying out original research while improving students' achievement and critical thinking skills. Students select a topic related to an annual theme, conduct their own research, and develop a presentation on that topic in one of four areas - paper, media, performance, or project. Depending on how successful the students are at regional and state competitions, the Program lasts from six to nine months and culminates in state winners competing at the national level, in June, at the University of Maryland.

While on paper these schools and programs use active learning models and methods, the results of this literature search and consequent question of how the literature relates to reality, leaves me wondering if the students in these schools and programs are doing their own learning or if the teachers are dominating the process? What would observations of the related classrooms or activity centers show?

The Future

It doesn't do much good to have a wheel, even a Deweyan wheel, if you don't use it, unless of course you like to look at wheels. Hartoonian (1984), who describes our present age as the electronic/information age, defines information as one dimensional - it is linear, fragmented and useless; knowledge, he says, is structured information that shows relationships

between and among bits of information; and wisdom, he argues, is the application of information and knowledge to human dilemmas and desires to make human conditions better. It is this wisdom, he claims, this ability to apply knowledge to social situations, that should be the purpose of education; and to accomplish this goal, education must pay more attention to the development of the students' minds.

Estimates are that within the next ten years information will increase 100 percent every 24 months (Hartoonian, 1984) and societal changes will also race far ahead of educational changes. There is no way that teachers can transmit either that volume of information or that kind of societal change. What teachers can teach, according to active learning Proponents and futurists, through an active learning model, is how to find the information and interpret, analyze and use it constructively in a societal context.

What can we learn from a Foxfire or a National History Day Program that will help us in the future? What can we learn from profiles of teachers who now conduct classrooms using these models and methods? What can we learn from students in these programs? What can we learn from the successes and failures in these models?

The new buzzword for the future is restructuring (of course, it's not really new). It's the new medicine for all of our educational diseases. But what is it? If it refers to a new role for teachers as policy and curriculum makers or to a change in the structure of a school day or a change in the makeup of classes or a curriculum modification or all of

these things, how will these changes affect how and what the students learn; how will it affect the student's ability to think for himself and to use that skill positively for himself and for his part in society? Will, in fact, any such changes make a difference in the way teachers teach?

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